

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

POWER INTEGRATIONS, INC.,)	
)	REDACTED
Plaintiff,)	PUBLIC VERSION
)	
v.)	C.A. No. 04-1371-JJF
)	
FAIRCHILD SEMICONDUCTOR)	
INTERNATIONAL, INC., and FAIRCHILD)	
SEMICONDUCTOR CORPORATION,)	
)	
Defendants.)	

**DEFENDANTS FAIRCHILD SEMICONDUCTOR INTERNATIONAL,
INC. AND FAIRCHILD SEMICONDUCTOR CORPORATION'S
PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW
REGARDING THE UNENFORCEABILITY OF THE PATENTS-IN-SUIT
DUE TO INEQUITABLE CONDUCT**

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Fairchild's Findings of Fact and Conclusions of Law with respect to the proceedings concerning Power Integrations' inequitable conduct before the Patent Office are set forth below. To the extent that the following Conclusions of Law may be deemed to be Findings of Fact, they are incorporated by reference in the Findings of Fact. To the extent that the following Findings of Fact may be deemed to be Conclusions of Law, they are incorporated by reference in the Conclusions of Law.

CONCLUSIONS OF LAW

I. LEGAL STANDARDS.

1. "It is well settled that patent applicants are required to prosecute patent applications 'with candor, good faith, and honesty.'" *Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1233 (Fed. Cir. 2003) (quoting *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995)); 37 C.F.R. § 1.56.

2. This duty explicitly extends to both the applicant and the "applicant's representatives." *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 n.6 (Fed. Cir. 1995) (holding that this duty extends to "the inventor, [...] each attorney or agent who prepares or prosecutes an application and [...] every other individual who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee, or with anyone to whom there is an obligation to assign the application."); *see also* 37 C.F.R. § 1.56(a) ("Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office") (emphasis added); *FMC Corp. v. Manitowoc Co.*, 835 F.2d 1411, 1415 n. 8 (Fed. Cir. 1987) (the knowledge and actions of an applicant's representative are chargeable to the applicant).

3. "Inequitable conduct occurs when a patentee breaches his or her duty to the PTO of 'candor, good faith, and honesty.'" *Warner-Lambert Co. v. Teva Pharms. USA, Inc.*, 418 F.3d 1326, 1342 (Fed. Cir. 2005).

4. The duty is breached by an "affirmative misrepresentation of a material fact," a "failure to disclose material information," or a "submission of false material information."

Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc., 326 F.3d 1226, 1233 (Fed. Cir. 2003).

5. A breach of this duty, when coupled with “an intent to deceive or mislead the PTO, constitutes inequitable conduct.” *Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1233 (Fed. Cir. 2003).

6. A patent is unenforceable for inequitable conduct if it is shown, by clear and convincing evidence, that an applicant submitted materially false information or failed to disclose material information to the PTO during prosecution, with an intent to deceive. *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995).

A. The Court Must Balance the Materiality of the Misconduct with the Showing of Intent.

7. To determine whether a patentee committed inequitable conduct, a court balances the levels of materiality and intent to determine whether the equities warrant a conclusion that inequitable conduct occurred, “with a greater showing of one factor allowing a lesser showing of the other.” *Digital Control Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1313 (Fed. Cir. 2006); *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995).

8. Where a court has found high materiality, “the showing of intent can be proportionally less.” *Novo Nordisk Pharm., Inc., v. Bio-Technology Gen. Corp.*, 424 F.3d 1347, 1359 (Fed. Cir. 2005).

9. “The inequitable conduct analysis is performed in two steps comprising ‘first, a determination of whether the withheld reference meets a threshold level of materiality and intent to mislead, and second, a weighing of the materiality and intent in light of all the circumstances to determine whether the applicant’s conduct is so culpable that the patent should be held unenforceable.’” *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1362-63 (Fed. Cir. 2003) (quoting *Purdue Pharma L.P. v. Boehringer Ingelheim GMBH*, 237 F.3d 1359, 1366 (Fed. Cir. 2001)).

B. Materiality

10. The dominant standard determining materiality is the “reasonable examiner”

standard. *Digital Control Inc. v. Charles Machine Works*, 437 F.3d 1309, 1316 (Fed. Cir. 2006) (noting that “[t]he new Rule 56 was not intended to replace or supplant the ‘reasonable examiner’ standard”) (applying the “reasonable examiner” standard)

11. “[M]ateriality is determined from the viewpoint of a reasonable patent examiner, and not the subjective beliefs of the patentee.” *Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1238 (Fed. Cir. 2003) (internal citations omitted); *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007).

12. Information is material when there is a substantial likelihood that a “reasonable examiner” would consider it important in deciding whether to allow the application to issue. *Digital Control Inc. v. Charles Machine Works*, 437 F.3d 1309, 1314, 1316 (Fed. Cir. 2006).

13. Information is also material where it is not cumulative of information already of record and “(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) It refutes, or is inconsistent with, a position the applicant takes in: (i) Opposing an argument of unpatentability relied on by the Office, or (ii) Asserting an argument of patentability.” 37 C.F.R. §1.56 (2007); *Digital Control Inc. v. Charles Machine Works*, 437 F.3d 1309, 1316 (Fed. Cir. 2006).

1. Affirmative misstatements are presumed to be highly material.

14. The Federal Circuit has held that “affirmative misrepresentations by the patentee, in contrast to misleading omissions, are more likely to be regarded as material.” *Hoffman-La-Roche v. Promega Corp.*, 323 F.3d 1354, 1367 (Fed. Cir. 2003); *Rohm & Haas Co. v. Crystal Chem. Co.*, 722 F.2d 1556, 1571 (Fed. Cir. 1983); *Gardiner v. Gendel*, 727 F. Supp. 799, 804 (E.D.N.Y. 1989) (“plaintiffs ... engaged in inequitable conduct ... by having misrepresented the state of the prior art by failing to disclose the most relevant known prior art while disclosing clearly less relevant prior art.”)

15. “[T]he fact that the examiner did not have to rely on the [...] representations in issuing the patent is not inconsistent with a finding of materiality.” *Hoffman-La-Roche v. Promega Corp.*, 323 F.3d 1354, 1368 (Fed. Cir. 2003); *see also Merck & Co. v. Danbury*

Pharmacal, Inc., 873 F.2d 1418, 1421 (Fed. Cir. 1989).

2. Prior art that could invalidate a claim is highly material.

16. “While inequitable conduct includes affirmative misrepresentations of material facts, it also arises when the patentee fails to disclose material information to the PTO.” *Ferring B.V. v. Barr Laboratories, Inc.*, 437 F.3d 1181, 1186 (Fed. Cir. 2006).

17. An omitted reference is not immaterial simply because the patent would have issued over it. *Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1238 (Fed. Cir. 2003) (affirming a finding of inequitable conduct, notwithstanding that the withheld reference was cited in reexamination and “eventually deemed by an examiner to be patentable thereover”); *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1322 (Fed. Cir. 2000) (stating that a patent may be valid over the withheld reference and yet be rendered unenforceable due to inequitable conduct).

18. “Materiality is not limited to matters reflected in the claims of a patent.” *Hoffman-La-Roche v. Promega Corp.*, 323 F.3d 1354, 1367 (Fed. Cir. 2003); *see also PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1322 (Fed. Cir. 2000).

3. Withheld prior art that relates to a point of novelty raised by the examiner is material

19. Information is material when the examiner raises an issue to which the information relates. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007)

20. Where examiner raises the importance of a specific point of novelty in the application, any information related to that point of novelty is material. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007); *see also Procter & Gamble Co. v. Kimberly-Clark Corp.*, 12 U.S.P.Q.2d 1577, 1594 (D. S.C. 1989), *aff’d*, 907 F.2d 159 (Fed. Cir. 1990) (“[T]he court cannot imagine a more material representation than a declaration submitted specifically to overcome a prior art rejection.”)

4. Withheld prior art upon which reexamination of a patent is granted is material

21. The presence or absence of “a substantial new question of patentability”

determines whether or not reexamination is ordered. 35 U.S.C. 304 (“If, in a determination made under the provisions of subsection 303(a) of this title, the Director finds that a substantial new question of patentability affecting any claim of a patent is raised, the determination will include an order for reexamination of the patent for resolution of the question”); 37 CFR 1.510(b)(1) (requiring that a request for ex parte reexamination include “a statement pointing out each substantial new question of patentability based on prior patents and printed publications”).

22. “A prior art patent or printed publication raises a substantial question of patentability where there is a substantial likelihood that a reasonable examiner would consider the prior art patent or printed publication important in deciding whether or not the claim is patentable.” MPEP §2242 (emphasis added).

23. The standard for assessing materiality for purposes of inequitable conduct is whether “there is a substantial likelihood that a reasonable examiner would consider [the prior art] important in deciding whether to allow the application to issue as a patent,” which is the same as the reexamination standard. *Digital Control Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1315 (Fed. Cir. 2006) (emphasis added)

24. “[T]he result of a PTO proceeding that assesses patentability in light of information not originally disclosed is of strong probative value in determining whether the nondisclosed information would have been material.” *J.P. Stevens & Co. v. Lex Tex Ltd., Inc.*, 747 F.2d 1553, 1562 (Fed. Cir. 1984), *overruled on other grounds*, *Kingsdown Med. Consultants, Ltd.*, 863 F.2d 867 (Fed. Cir. 1988); *see also Nilssen v. Osram Sylvania, Inc.*, 440 F. Supp. 2d 884, 896, 2006 U.S. Dist. LEXIS 47234, **22-23 (N.D. Ill. 2006) (PTO’s finding of a “substantial new question of patentability” and grant of reexamination based, “in part,” on a reference “confirm[ed] its materiality”), *aff’d*, 2007 U.S. App. LEXIS 23733 (Fed. Cir. 2007).

5. Applicant should err on the side of disclosure

25. When materiality of information is a close-call, the Federal Circuit has held that “a patent applicant should err on the side of disclosure.” *Flex-Rest, LLC v. Steelcase, Inc.*, 455 F.3d 1351 (Fed. Cir. 2006); *see also Critikon, Inc. v. Becton Dickinson Vascular Access*, 120

F.3d 1253, 1257 (Fed. Cir. 1997) (“It is axiomatic that ‘[c]lose cases should be resolved by disclosure, not unilaterally by the applicant.’”) (quoting *LaBounty Mfg., Inc. v. U.S. Int’l Trade Comm’n*, 958 F.2d 1066, 1076 (Fed. Cir. 1992)).

6. **Applicant’s belief that an application is patentable is irrelevant to materiality**

26. That an applicant believes an application to be patentable is of no consequence in a materiality determination. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007).

7. **Prior art that teaches more than what is before the examiner is material non-cumulative prior art**

27. A reference that is cumulative to other references does not meet the threshold of materiality. *Novo Nordisk Pharm., Inc., v. Bio-Technology Gen. Corp.*, 424 F.3d 1347, 1362 (Fed. Cir. 2005).

28. A reference is only cumulative where it “teaches no more than what a reasonable examiner would consider to be taught by the prior art already before the PTO.” *Novo Nordisk Pharm., Inc., v. Bio-Technology Gen. Corp.*, 424 F.3d 1347, 1362 (Fed. Cir. 2005).

29. An omitted reference that “provides a highly technical discussion” of material information is not cumulative to a submitted reference that “provides cursory [...] details.” *McKesson Info. Solutions, Inc. v. Bridge Med., Inc.*, 487 F.3d 897, 915 (Fed. Cir. 2007) (even though 3 patents in the record taught “three node communication,” prior art not cumulative for the purposes of a materiality determination because it went into the system in much more detail, and as such, taught more than what was already taught by the prior art)

8. **Claims should be given their broadest reasonable interpretation, and not limited to the court’s claim construction, for the purposes of a materiality determination**

30. For the purpose of the patent examination process, patent claims are given “their broadest reasonable interpretation consistent with the specification.” MPEP § 2111; *In re Trans Tex. Holdings Corp.*, 498 F.3d 1290, 1295, 1298 (Fed. Cir. 2007) (citing *In re Yamamoto*, 740

F.2d 1569, 1571 (Fed. Cir. 1984))

31. In a district court, “claims should be so construed, if possible, as to sustain their validity.” *Carman Indus., Inc. v. Wahl*, 724 F.2d 932, 937 n. 5 (Fed. Cir. 1983); *ACS Hosp. Systems, Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984).

32. The PTO is not required, in the course of prosecution, to interpret claims in applications in the same manner as a court would interpret claims in an infringement suit. Rather, the “PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997); MPEP §2111; *In re Trans Tex. Holdings Corp.*, 498 F.3d 1290, 1296, 1301 (Fed. Cir. 2007) (affirming Board of Patent Appeals and Interferences holding “that a different claim construction standard applies in PTO proceedings” and in District Court proceedings)

C. Intent

1. Intent can be inferred from circumstantial evidence.

33. There is “no requirement that intent to deceive be proven by direct evidence; in fact, it is rarely proven by such evidence.” *Impax Labs. v. Aventis Pharms.*, 468 F.3d 1366, 1375 (Fed. Cir. 2006) (citing *Merck & Co. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1422 (Fed. Cir. 1989)).

34. “[S]moking gun’ evidence is not required in order to establish an intent to deceive. . . . Rather, this element of inequitable conduct, must generally be inferred from the facts and circumstances surrounding the applicant’s overall conduct.” *Paragon Podiatry Laboratory, Inc. v. KLM Laboratories, Inc.*, 984 F.2d 1182, 1189 (Fed. Cir. 1993).

35. Intent to deceive the Patent Office is most commonly “inferred from the facts and circumstances surrounding the applicant’s overall conduct.” *Impax Labs. v. Aventis Pharms.*, 468 F.3d 1366, 1375 (Fed. Cir. 2006).

2. Intent can be inferred from affirmative misrepresentations to PTO

36. With respect to affirmative misrepresentations it has been held that “[w]hile direct proof of intent to mislead is normally absent, such submissions usually will support the conclusion that the affidavit in which they were contained was the chosen instrument of an intentional scheme to deceive the PTO.” *Rohm & Haas Co. v. Crystal Chemical Co.*, 722 F.2d 1556, 1571 (Fed. Cir. 1983).

37. Mischaracterization of prior art and “burying” prior art in a patent application may evidence intent to deceive, and constitute inequitable conduct. *See Molins Plc v. Textron*, 48 F.3d 1172, 1183-1184 (Fed. Cir. 1995).

3. Intent can be inferred from withholding material information

38. The intent threshold in an inequitable conduct determination regarding withheld prior art is met if it is established that “(1) the applicant knew of the information; (2) the applicant knew or should have known of the materiality of the information; and (3) the applicant has not provided a credible explanation for the withholding.” *Ferring B.V. v. Barr Laboratories, Inc.*, 437 F.3d 1181, 1191 (Fed.Cir. 2006).

39. The Federal Circuit has “long recognized that a patentee facing a high level of materiality and clear proof that it knew or should have known of that materiality, can expect to find it difficult to establish ‘subjective good faith’ sufficient to prevent the drawing of an inference of intent to mislead.” *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1367 (Fed. Cir. 2007) *citing Critikon*, 120 F.3d at 1357.

4. Inference of intent supported where applicant explicitly acknowledges that withheld prior art is “similar” to the invention or otherwise of interest in relation to the invention.

40. An inference of intent and a finding of inequitable conduct have been supported based on the fact that (1) applicant’s memo requesting a searcher to prepare a patentability report on the invention stated that the invention and a prior art reference were “similar,” (2) the prior art search report described a prior art reference as “of special interest,” (3) the prior art references

were not cited even though it was attorney's "standard practice" to cite all references in search report. *Elk Corp. of Dallas v. GAF Building Materials Corp.*, 168 F.3d 28 (Fed. Cir. 1999), *cert denied*, 120 S. Ct. 178 (1999); *see also Pollenex Corp. v. Sunbeam-Home Comfort*, 835 F. Supp. 394, 402 (N.D. Ill. 1993) (culpable intent inferred where inventors used uncited prior art items as "a benchmark" in their design and development of the claimed invention; where inventors "intimately involved in the evaluation of [a non-disclosed] device" such involvement is part of the "evidence establishing the inventors' intent to deceive the PTO")

5. Inference of intent supported where examiner raises an issue to which withheld information relates, yet information is not disclosed

41. An applicant should know information is material when the examiner raises an issue to which the information relates. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007)

42. When an examiner raises the importance of a specific point of novelty in the application the applicant should be aware of the materiality of withheld data related to that point of novelty. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007)

43. The fact that the examiner raises the importance of a specific point of novelty in the application and the applicant withholds information related to that point of novelty is "significant circumstantial evidence of an intent to deceive the PTO." *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007); *see also LaBounty Manufacturing v. U.S. Int'l Manufacturing v. U.S. Int'l Trade Comm'n*, 958 F.2d 1066 (Fed. Cir. 1992) (intent inferred where applicant focused on a particular feature to overcome a rejection, but withheld references showing that the feature was found in the prior art); *Pollenex Corp. v. Sunbeam-Home Comfort*, 835 F. Supp. 394, 402 (N.D. Ill. 1993) (inventors argued for allowance of the claims by emphasizing "a combination of features, all but one of which were shown in combination by the uncited [items] and all of which were shown by combining the [items] with merely one other of the patents cited by the Examiner in his initial disallowance"))

44. Where the material reference relates to "the heart of the question that bedeviled

the examiner” creates a “strong inference of an intent to deceive.” *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1367 (Fed. Cir. 2007)

45. More generally, “duty to inquire arises” where an attorney, or an applicant, “has notice of the likelihood that specific relevant, material information exists and should be disclosed.” *Brasseler, v. Stryker Sales Corp.*, 267 F.3d 1370, 1383 (Fed. Cir. 2001).

46. Notice of a possibly material reference arises when information of which the attorney or applicant is aware “suggests the existence of specific information that may be material.” *Brasseler, v. Stryker Sales Corp.*, 267 F.3d 1370, 1383 (Fed. Cir. 2001).

47. Once an attorney, or an applicant, has notice that information exists that appears material and questionable, that person cannot ignore that notice in an effort to avoid his or her duty to disclose. *Brasseler v. Stryker Sales Corp.*, 267 F.3d 1370, 1383 (Fed. Cir. 2001)

48. “[O]ne should not be able to cultivate ignorance, or disregard numerous warnings that material information or prior art may exist, merely to avoid actual knowledge of that information or prior art. . . . Where one does, deceptive intent may be inferred. *Brasseler v. Stryker Sales Corp.*, 267 F.3d 1370, 1383 (Fed. Cir. 2001) (internal citation omitted); *FMC Corp. v. Hennessy Industries Inc.*, 836 F.2d 521, 526 (Fed. Cir. 1987)

6. Inference of intent supported where applicant makes repeated omissions

49. Whether there is a “repeated omission” is relevant to the intent inquiry because “intent may be inferred where a patent applicant knew, or should have known, that withheld information would be material to the PTO’s consideration of the patent application.” *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed. Cir. 2007)

7. Inference of intent supported where there is a specific motive to deceive the Patent Office

50. Intent to deceive can be inferred from an applicant’s specific motive to conceal prior art. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1367 (Fed. Cir. 2007)

8. No such thing as “good faith” intent to deceive.

51. “[T]here is no such thing as a good faith intent to deceive. When an applicant knows or obviously should know that information would be material to the examiner . . . but the applicant decides to withhold that information, “good faith” does not negate an intent to manipulate the evidence. Indeed, self-serving manipulation of highly material evidence can hardly be called ‘good faith.’” *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1367-1368 (Fed. Cir. 2007) (internal citations and footnote omitted) (emphasis added).

9. **In the intent analysis, the knowledge of applicants and attorneys are imputed to each other**

52. A patent applicant cannot circumvent the patent disclosure system by segregating the knowledge of the patent’s inventors and its attorneys. *Brasseler v. Stryker Sales Corp.*, 267 F.3d 1370, 1380 (Fed. Cir. 2001).

53. Knowledge of the inventors is imputed to the representatives, and knowledge of the representatives is imputed to the inventors. *FMC Corp v. Manitowoc Co.*, 835 F.2d 1411, 1415 n.8 (Fed. Cir. 1987) (stating that knowledge and actions of an applicant’s representative are chargeable to applicant for purposes of determining enforceability of the patent); *Brasseler v. Stryker Sales Corp.*, 267 F.3d 1370, 1381-1385 (Fed. Cir. 2001) (holding attorneys’ conduct was sufficient to find unenforceability).

54. Ignorance of the law is no defense. “Knowledge of the law is chargeable to the inventor” and “inventors represented by counsel are presumed to know the law.” *Brasseler v. Stryker Sales Corp.*, 267 F.3d 1370, 1385 (Fed. Cir. 2001)

10. **The doctrine of infectious unenforceability**

55. Under the doctrine of infectious unenforceability, inequitable conduct renders unenforceable all claims that eventually issue from the same or a related application. *Fox Industries, Inc. v. Structural Preservation Systems, Inc.*, 922 F.2d 801, 803-804 (Fed. Cir. 1990) (finding continuation application tainted by inequitable conduct in the parent application).

56. To “prevent manipulation of the patent process,” a patent issued from a divisional application will be unenforceable due to inequitable conduct in the parent application where the

claims of the divisional are related to the inequitable conduct. *Semiconductor Energy Lab. Co. v. Samsung Elecs. Co.*, 24 F. Supp. 2d 537, 543-544 (E.D. Va. 1998) (holding patent unenforceable because of inequitable conduct in related divisional application), affirmed by *Semiconductor Energy Lab. Co. v. Samsung Elecs. Co.*, 204 F.3d 1368, 1371 (Fed. Cir. 2000); *Baxter Int'l v. McGaw, Inc.*, 149 F.3d 1321,1332 (Fed. Cir. 1998).

II. LEGAL FINDINGS

A. '075 Patent

57. Dr. Eklund was aware of prior art that was highly material to the prosecution of the '075 patent and would have been important to a reasonable examiner in deciding whether the patent should issue.

58. None of the withheld prior art was cumulative to any of the prior art before the Patent Office.

59. Dr. Eklund withheld the highly material prior art during the prosecution of the '075 Patent with the intent to deceive the Patent Office.

60. Dr. Eklund committed inequitable conduct and thus the '075 Patent is unenforceable.

B. '851 Patent

61. The Applicants for the '851 Patent were aware of prior art (including the SMP211, SMP3, SMP240 and SMP260) that was highly material to the prosecution of the '851 Patent and would have been important to a reasonable examiner in deciding whether the patent should issue.

62. The Applicants for the '851 Patent were aware of prior art (including the SMP211, SMP3, SMP240 and SMP260) that was inconsistent with the Examiner's stated reason for allowance of the claims of the '851 Patent and would have been important to a reasonable examiner in deciding whether the patent should issue.

63. The Applicants for the '851 Patent were aware of prior art (including the

SMP211, SMP3, SMP240 and SMP260) that contradicted arguments they made for allowance of the claims during the prosecution of the '851 Patent and would have been important to a reasonable examiner in deciding whether the patent should issue.

64. None of the withheld prior art was cumulative to any of the prior art before the Patent Office.

65. The Applicants withheld the highly material prior art during the prosecution of the '851 Patent with the intent to deceive the Patent Office.

66. The Applicants made false and material statements during the prosecution of the '851 Patent with the intent to deceive the Patent Office.

67. The Applicants committed inequitable conduct and thus the '851 Patent is unenforceable.

C. '366 Patent

68. The '366 Patent is unenforceable due to the Applicants' inequitable conduct during the prosecution of the '851 Patent.

69. The Applicants for the '366 Patent were aware of prior art (including the SMP3, SMP240 and SMP260) that was highly material to the prosecution of the '366 Patent and would have been important to a reasonable examiner in deciding whether the patent should issue.

70. None of the withheld prior art was cumulative to any of the prior art before the Patent Office.

71. The Applicants withheld the highly material prior art during the prosecution of the '366 Patent with the intent to deceive the Patent Office.

72. The Applicants committed inequitable conduct and thus the '366 Patent is unenforceable.

D. '876 Patent

73. The Applicants for the '876 Patent were aware of prior art that was highly material to the prosecution of the '876 Patent and would have been important to a reasonable examiner in deciding whether the patent should issue.

74. None of the withheld prior art was cumulative to any of the prior art before the Patent Office.

75. The Applicants withheld the highly material prior art during the prosecution of the '876 Patent with the intent to deceive the Patent Office.

76. The Applicants committed inequitable conduct and thus the '876 Patent is unenforceable.

FINDINGS OF FACT

III. '075 PATENT

A. '075 Patent: Claim 1

1. The '075 patent is entitled "High Voltage MOS Transistors." [PX4, p. 1]
2. Claim 1 of the '075 patent claims:
 1. A high voltage MOS transistor comprising:
 - a semiconductor substrate of a first conductivity type having a surface,
 - a pair of laterally spaced pockets of semiconductor material of a second conductivity type within the substrate and adjoining the substrate surface,
 - a source contact connected to one pocket,
 - a drain contact connected to the other pocket,
 - an extended drain region of the second conductivity type extending laterally each way from the drain contact pocket to surface-adjoining positions,
 - a surface adjoining layer of material of the first conductivity type on top of an intermediate portion of the extended drain region between the drain contact pocket and the surface-adjoining positions,
 - said top layer of material and said substrate being subject to application of a reverse-bias voltage,
 - an insulating layer on the surface of the substrate and covering at least that portion between the source contact pocket and the nearest surface-adjoining position of the extended drain region, and
 - a gate electrode on the insulating layer and electrically isolated from the substrate region thereunder which forms a channel laterally between the source contact pocket and the nearest surface-adjoining position of the extended drain region, said gate electrode controlling by field-effect the flow of current thereunder through the channel.

[PX4 at 5:54-6:12]

1. Claim 1: The "P-TOP" ("surface adjoining layer of material . . .")

3. At the time he created his invention, Dr. Eklund considered the introduction of the "P-TOP" to be his invention. [(10/2/06 Trial Transcript, Eklund) 214:20-215:3; (6/7/07 Eklund Depo.) 498:23-499:14]

4. The "P-TOP" is the "surface adjoining layer of material . . ." element listed in Claim 1 above. [(9/20/07 Trial Transcript, Eklund) 1118:11-14]

5. The '075 Patent is referred to as the P-TOP patent. [(9/20/07 Trial Transcript, Eklund) 1086:13-17, 1091:13-22; (10/6/06 Trial Transcript) 1546:3-11; (9/21/07 Trial Transcript) 1368:8-11]

REDACTED

8. During the October 2006 phase of trial, when testifying about the P-TOP, Dr. Eklund focused on the addition of the P-TOP between the gate and the drain:

an N class drain that is far away from the gate. And the distance from the gate and the drain has to take up high voltage when the switch is in the off position. So to improve this, we added or I added a P-TOP reaching the surface into the L [sic] well reaching the surface close to the gate. By doing this, being able to increase the current capability of the device by the fact of two to three on the same area.

[(10/2/06 Trial Transcript, Eklund) 211:18-213:15]

9. In Figure 1 of the '075 patent, the top layer or P-TOP element is labeled as "27." [PX4 at 2:57-62; (9/20/07 Trial Transcript, Eklund) 1118:11-14] (see below)

10. In Figure 1 of the '075 patent, the substrate element is labeled as "11" and the "surface" of the substrate is represented by the horizontal line between areas "11" and "12." [PX4 at 2:32-35] (see below)

11. In Figure 1 of the '075 patent, the gate element is labeled "17." [PX4 at 2:37-41] (see below)

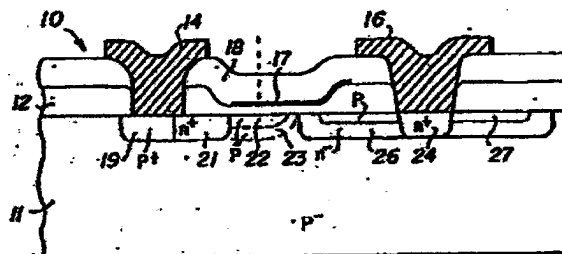


Fig.1

2. **Claim 1: The "Extended Drain"**

12. Dr. Eklund has asserted that an inventive aspect of the '075 invention is having an n-well extended drain extending both to the right and to the left from the drain. [(9/20/07 Trial Transcript, Eklund) 1091:13-22]

13. In Figure 1 of the '075 patent, the "extended drain" element is labeled as "26." [PX4 at 2:53-57] (see below)

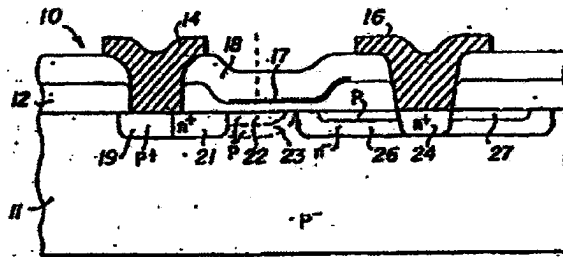


Fig.1

REDACTED

15. The extended drain region of the '075 patent extends to "surface-adjointing positions." [PX4 at 5:62-64]

16. According to Dr. Eklund, a surface adjoining position is a diffusion which goes to the surface, but does not really have to contact the surface. [(10/14/05 Eklund Depo.) 165:23-166:9]

17. The "surface" is the top surface of the substrate. [(10/14/05 Eklund Depo.) 166:11-19]

B. **'075 Patent: Claim 5**

18. Claim 5 of the '075 patent claims:

5. The high voltage MOS transistor of claim 1 combined on the same chip with a low voltage CMOS implemented device.

[PX4 at 5:25-27]

C. Wakaumi Reference

19. Dr. Eklund testified that his September 26, 1984 notes were the initial proposal for the concept eventually patented in the '075 patent. [(9/20/07 Trial Transcript, Eklund) 1096:17-1097:8, 1089:13-15; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 9:20-10:1]

20. Dr. Eklund has testified that he first had the idea for his P-TOP invention in September 1984. [(9/20/07 Trial Transcript, Eklund) 1089:13-15]

21. In his September 26, 1984 notes, Dr. Eklund has a section labeled "D-MOS lateral transistor in combination with C-MOS logic." [PX29 at p. 3; (10/2/06 Trial Transcript, Eklund) 247:11-14]

22. That section of notes referred to an article entitled "A highly reliable 16 output high voltage NMOS/CMOS logic." [PX29 at p. 3; (10/2/06 Trial Transcript, Eklund) 247:15-248:16; (9/20/07 Trial Transcript, Eklund) 1187:11-15; (10/14/05 Eklund Depo.) 122:12-123:17; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 9:20-10:17]

23. The article was written by H. Wakaumi and others. [DX55 at FCS1692655; (10/2/06 Trial Transcript, Eklund) 249:3-10; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 10:6-17]

24. The Wakaumi article was from 1983 IEDM proceedings and was prior to both Dr. Eklund's invention and his September 26, 1984 notes. [DX55; (10/2/06 Trial Transcript, Eklund) 249:11-20]

25. The goal of Dr. Eklund's work was the efficient combination of high and low voltage devices on the same chip. [(9/20/07 Trial Transcript, Eklund) 1089:16-22]

26. The Wakaumi reference was important enough for Dr. Eklund to put in his September 26, 1984 notes. [(9/20/07 Trial Transcript, Eklund) 1188:2-5]

REDACTED

28. Dr. Eklund had the Wakaumi reference in his possession in September 1984.

[(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 11:7-9; (10/14/05 Eklund Depo.) 123:13-21]

29. Dr. Eklund had the Wakaumi reference in his possession during the prosecution of the '075 patent. [(10/14/05 Eklund Depo.) 231:14-17, 123:13-25; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 10:23-11:2]

30. Dr. Eklund still has the Wakaumi reference in his possession. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 11:4-6]

REDACTED

34. The structure in the Wakaumi article describes a lateral transistor in combination with C-MOS logic. [(10/2/06 Trial Transcript, Eklund) 248:17-249:2, 249:21-24]

35. The Wakaumi article was one of only two references in Dr. Eklund's September 1984 notes. [(9/20/07 Trial Transcript, Eklund) 1188:2-8]

36. Dr. Eklund did not disclose the Wakaumi reference to the Patent Office. [(9/20/07 Trial Transcript, Eklund) 1187:16-1188:1; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 10:18-21, 18:2-9; (10/14/05 Eklund Depo.) 231:18-25, 232:12-13]

37. Dr. Eklund did not disclose the Wakaumi reference to his patent attorney. [(10/14/05 Eklund Depo.) 122:12-124:7, 124:24-125:5, 125:11-12, 125:25-126:3]

D. Hower Reference

38. In his September 26, 1984 notes, Dr. Eklund refers to an article entitled "Optimum Design of Power MOSFETs" by P.L. Hower, among others. [(10/14/05 Eklund Depo.) 119:25-120:11; DX600; PX29 at p. 3]

REDACTED

REDACTED

43. Dr. Eklund did not disclose the Hower reference to the Patent Office. [PX4 at p.1]

REDACTED

E. 1984 Prior Art Study

45. After Dr. Eklund created his September 1984 notes, he conducted an overview of the industry. [(9/20/07 Trial Transcript, Eklund) 1188:9-12; (6/7/07 Eklund Depo.) 467:20-21; DX627]

REDACTED

47. Dr. Eklund prepared a prior art study dated October 15, 1984. [(9/20/07 Trial Transcript, Eklund) 1188:13-19; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 14:23-15:7; (6/7/07 Eklund Depo.) 467:22-468:2; DX627]

48. Dr. Eklund considered this document to be a prior art search. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 5:8-20]

49. Dr. Eklund typed up and drafted the text in the first four pages of the prior art study memo. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 15:8-12]

50. There were twelve exhibits to the prior art study memo, which were excerpts from articles that Dr. Eklund had in his possession at least as of October 15, 1984. [(9/21/07 Trial Transcript, Eklund) 15:13-16:1; (6/7/07 Eklund Depo.) 473:5-21; DX627]

REDACTED

53. The prior art study was entitled "High Voltage MOS Integrated Circuits, A Technology And Application Overview." [DX627; (9/20/07 Trial Transcript, Eklund) 1188:16-19]

54. In the prior art study, Dr. Eklund looked at the key companies making parts that had a high voltage MOS integrated circuit. [(9/20/07 Trial Transcript, Eklund) 1188:20-1189:5]

55. In the prior art study, Dr. Eklund looked at NEC, which had an ion implanted extended drain region in their device. [(9/20/07 Trial Transcript, Eklund) 1189:6-11; (6/7/07 Eklund Depo.) 468:3-20]

56. In the prior art study, Dr. Eklund looked at Sharp, which was a competitor of AMD at the time. [(9/20/07 Trial Transcript, Eklund) 1189:13-16; (6/7/07 Eklund Depo.) 468:3-10]

57. In the prior art study, Dr. Eklund looked at Tektronics, which was another competitor. [(9/20/07 Trial Transcript, Eklund) 1189:17-21]

58. In the prior art study, Dr. Eklund looked at Philips. [(9/20/07 Trial Transcript, Eklund) 1189:22-24; (6/7/07 Eklund Depo.) 470:1-2]

59. In the prior art study, Dr. Eklund looked at Supertex. [(9/20/07 Trial Transcript, Eklund) 1190:1-3; (6/7/07 Eklund Depo.) 468:3-10]

60. In the prior art study, Dr. Eklund looked at Siliconix. [(9/20/07 Trial Transcript, Eklund) 1190:4-5; (6/7/07 Eklund Depo.) 468:3-10]

61. In the prior art study, Dr. Eklund looked at Telmos. [(9/20/07 Trial Transcript,

Eklund) 1190:4-5; (6/7/07 Eklund Depo.) 468:3-10]

62. In the prior art study, Dr. Eklund looked at AMI. [(9/20/07 Trial Transcript, Eklund) 1190:6-8; (6/7/07 Eklund Depo.) 468:3-12]

63. In the prior art study, Dr. Eklund looked at Holt. [(9/20/07 Trial Transcript, Eklund) 1190:6-8; (6/7/07 Eklund Depo.) 468:3-12]

64. In the prior art study, Dr. Eklund looked at Motorola. [(9/20/07 Trial Transcript, Eklund) 1190:12-14; (6/7/07 Eklund Depo.) 468:3-14]

65. In the prior art study, Dr. Eklund looked at Xerox. [(9/20/07 Trial Transcript, Eklund) 1190:15-17; (6/7/07 Eklund Depo.) 469:3-15]

66. In the prior art study, Dr. Eklund looked at Siemens, which was another competitor of AMD. [(9/20/07 Trial Transcript, Eklund) 1190:18-21]

67. In the prior art study, Dr. Eklund looked at Texas Instruments. [(9/20/07 Trial Transcript, Eklund) 1190:22-24; (6/7/07 Eklund Depo.) 469:16-21]

68. In the prior art study, Dr. Eklund looked at Thompson CSF. [(9/20/07 Trial Transcript, Eklund) 1190:22-24]

REDACTED

72. In the prior art study, Dr. Eklund looked at Harris' SLIC product. [(9/20/07 Trial Transcript, Eklund) 1191:19-23; (6/7/07 Eklund Depo.) 470:3-13]

REDACTED

REDACTED

76. Dr. Eklund was working on a SLIC project too at AMD. [(9/20/07 Trial Transcript, Eklund) 1191:24-1192:3]

77. In the prior art study, Dr. Eklund observed that "Texas Instrument in their BIDFET technology uses a combination of D-MOS, bipolars NPN and JFETS, and C-MOS for low voltage logic. This technology they use for SLIC and display drivers." [DX627 at KE001452]

78. All of this information about all of the other companies in the industry was prior art to Dr. Eklund's top-gate or P-TOP invention. [(9/20/07 Trial Transcript, Eklund) 1191:8-11; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 15:13-20]

79. All of these companies were selling products before Dr. Eklund. [(9/20/07 Trial Transcript, Eklund) 1191:12-15]

80. After Dr. Eklund gathered all of the prior art and prepared the prior art study, he distributed it among interested groups within AMD. [(9/20/07 Trial Transcript, Eklund) 1194:21-1195:1; (6/7/07 Eklund Depo.) 496:13-21]

REDACTED

82. All of the prior art in Dr. Eklund's prior art study dealt with putting high voltage MOS on the same chip as low voltage MOS. [(9/20/07 Trial Transcript, Eklund) 1194:21-1195:5]

83. In Dr. Eklund's prior art study he states regarding combination of high and low voltage devices: "However, rapid progress in C-MOS compatible logic, (in the 2-3 um range, c-MOS has the same speed performance as TTL-LS and a higher packing density) and a general trend to wish to integrate more logic will sure make it to find more applications." [DX627 at

KE001453 (emphasis added)]

REDACTED

86. At the time that Dr. Eklund began his work on high-voltage transistors, the use of an extended drain region that extended laterally each way from the drain contact pocket as part of a high-voltage MOS transistor was known by people who were skilled in the industry. [(6/7/07 Eklund Depo.) 493:12-494:1]

87. In October 1984, Dr. Eklund was able to find a number of articles that describe an extended drain region that extended laterally each way from the drain contact pocket and included those with his prior art study. [(6/7/07 Eklund Depo.) 494:2-14]

88. Dr. Eklund does not claim to have been the first to invent a high-voltage MOS transistor with a high-voltage drain, including an extended drain going each way from the drain contact pocket. [(6/7/07 Eklund Depo.) 494:15-20]

89. Dr. Eklund testified that Japanese companies in his prior art study were the inventors of the high-voltage MOS transistor containing an extended drain region that extends each way from a drain contact pocket and that Philips pretends to be the inventor of that feature. [(6/7/07 Eklund Depo.) 494:21-495:9]

90. In his prior art study, Dr. Eklund stated that:

“The technology to solve the open drain case has, so far, mainly been structured around conventional NMOS, PMOS and CMOS technologys, where one can add ion implanted extended drain regions offset or stacked gates or lightly doped drain regions to achieve the high voltage output devices.”

[DX627 at KE001450]

91. Dr. Eklund testified that these were his own words, his own summary and his own conclusion after reviewing all of the high voltage and low voltage technology on the same chip.

[(9/20/07 Trial Transcript, Eklund) 1195:6-1196:1]

REDACTED

93. During the prosecution of the '075 patent, Dr. Eklund had in his possession all of the articles attached as exhibits to his prior art study. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 16:2-5]

94. Dr. Eklund did not disclose any of the companies addressed in his October 1984 prior art study to the Patent Office. [(9/20/07 Trial Transcript, Eklund) 1191:8-18]

REDACTED

96. Dr. Eklund did not disclose any of the prior art references from the October 1984 prior art study to the Patent Office. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 6:2-7:5, 16:6-10; (6/7/07 Eklund Depo.) 497:2-5, 498:3-5]

REDACTED

98. The attorney that prosecuted the '075 patent was Thomas E. Schatzel. [PX4 at p. 1; (9/15/05 Schatzel Depo.) 105:25-106:18]

99. None of the prior art references discussed in the prior art study were provided to Mr. Schatzel. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 43:6-44:16; (6/7/07 Eklund Depo.) 497:6-7, 498:6-8]

REDACTED

101. Dr. Eklund does not recall whether he discussed the prior art study with Mr. Schatzel. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 7:14-24]

102. Dr. Eklund did not produce his prior art study in this case until May 2007, on the eve of the trial scheduled for June 2007. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 41:6-42:4; (6/7/07 Eklund Depo.) 467:13-19]

103. During prosecution the '075 patent, when the examiner rejected the claims citing the Colak DMOS patent, Dr. Eklund responded by emphasizing that his claims contained an extended drain region "extending laterally each way from the drain contact pocket to surface adjoining positions" and that this, in part, enabled the combination of high voltage and low voltage transistors on the same chip. [PX8 at PIF00035, PIF00045]

104. Later during prosecution, Dr. Eklund overcame a second rejection based on the Colak patent by again emphasizing the extended drain region. [PX8 at PIF00050, PIF00056]

F. Ludikhuize Reference

105. When Dr. Eklund created his October 1984 prior art study, he had an article by A.W. Ludikhuize who was with Philips. [(9/20/07 Trial Transcript, Eklund) 1191:1-3; DX627 at KE001463; DX56 at FCS1692679; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 12:12-17; (6/7/07 Eklund Depo.) 490:11-18]

REDACTED

108. Dr. Eklund had the Ludikhuize article in his possession during the prosecution of

the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 12:12-21, 13:12-16; (10/14/05 Eklund Depo.) 232:15-20]

109. The Ludikhuize article was from 1982 IEEE proceedings and was entitled "High Voltage DMOS and PMOS in Analog IC's. [DX627 at KE001463; DX56 at FCS1692679; (9/20/07 Trial Transcript, Eklund) 1193:19-22; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 12:24-13:3]

110. The Ludikhuize article was attached as Exhibit X to the prior art study. [DX627 at KE001463, KE001453; DX56]

111. In the prior art study, Dr. Eklund states regarding the Ludikhuize article "An interesting approach to further extend the voltage limit for a junction isolated process, has been to use a lateral D-MOS device together with the resurf principle. Exhibit X – Figure II shows a proposal from Philips." [DX627 at KE001453]

112. The Ludikhuize article discloses a P-TOP on top of the extended drain. [(9/20/07 Trial Transcript, Eklund) 1194:23-1194:17]

REDACTED

114. In the Ludikhuize article, the top layer is a region labeled P minus extending from the left and right of the drain on top of an extended drain extending each way from the drain contact pocket. [(9/19/07 Trial Transcript, Gwozdz) 587:9-590:8; (9/18/07 Trial Transcript, Gwozdz) 497:17-498:20]

115. The top layer in the Ludikhuize reference is on either side of the drain contact

pocket. [(9/19/07 Trial Transcript, Gwozdz) 588:2-8]

116. Figure 2 of the Ludikhuize article is as follows:

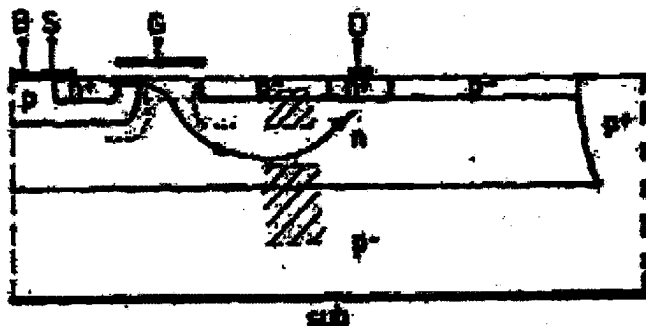
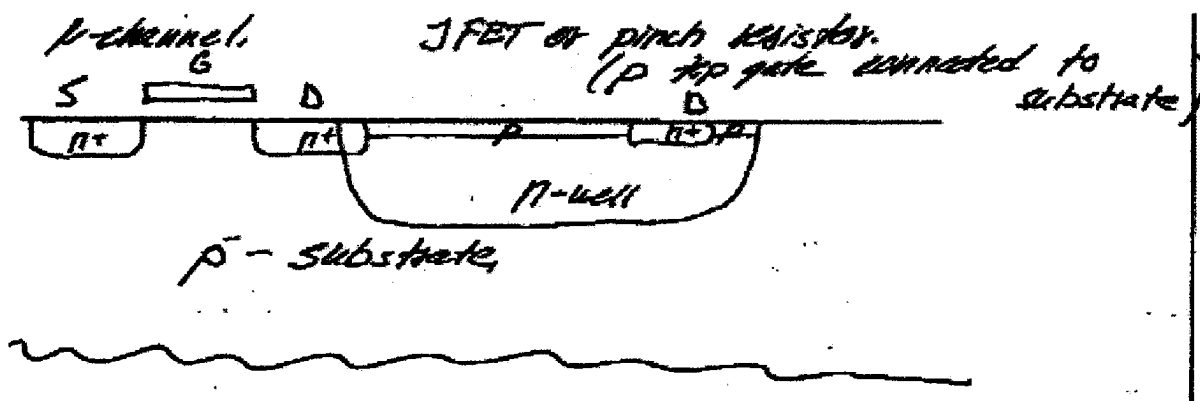


Fig. 2. LDMOST WITH interrupted p-layer.

117. The figure on the first page of Dr. Eklund's September 26, 1984 notes is as follows:



REDACTED

119. In Dr. Eklund's September 26, 1984 notes, he described his concept using the term "p top." [PX29 at pp. 1, 2]

120. Dr. Eklund testified that there are similarities between the P-TOP layer in the Ludikhuize article and the P-TOP layer in the '075 invention. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 47:3-6]

121. The P-TOP in the Ludikhuize article and the '075 patent are both layers having P-type impurities, they are both over top of a drift or extended drain region, they are both P-TOP layers extending laterally each way on opposite sides of the drain contact pocket and they both extend from the drain contact all the way to the edge of the gate. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 47:21-48:14]

122. The Ludikhuize article shows an extended drain region extending laterally each way from the drain contact pocket. [(9/20/07 Trial Transcript, Eklund) 1193:23-1194:3; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 14:4-10; (6/7/07 Eklund Depo.) 490:19-491:20; (9/18/07 Trial Transcript, Gwozdz) 498:24-499:20]

REDACTED

124. The extended drain region in the Ludikhuize reference is an n region that comes to the surface. [(9/19/07 Trial Transcript, Gwozdz) 587:19-588:1, 588:9-14]

125. The Ludikhuize article shows an extended drain going both ways underneath the top layer. [(9/19/07 Trial Transcript, Gwozdz) 588:9-14]

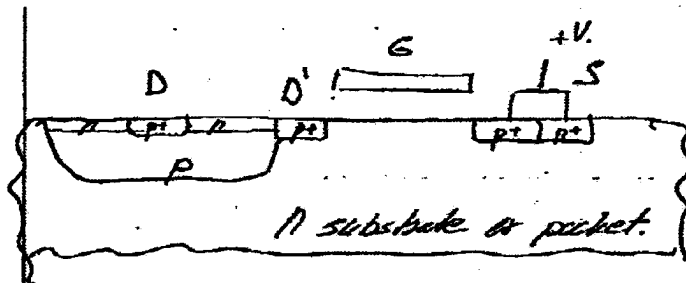
126. The Ludikhuize article uses the term "extended drain." DX627 at KE001463; DX56]

127. Figure 2 of the Ludikhuize shows a "pinch region" which is the shaded region of Figure 2. [(10/14/05 Eklund Depo.) 221:19-222:4, 222:6-17, 222:19-25; DX56 at FCS1692679-FCS1692680] (see above)

REDACTED

129. The first page of Dr. Eklund's September 26, 1984 notes refer to the pinch region as a "pinch resistor." [PX29 at p. 1]

130. The following is the figure from the fourth page of Dr. Eklund's September 26, 1984 notes:



[PX29 at p. 4]

REDACTED

132. In his October 1984 prior art study Dr. Eklund stated “[a]n interesting approach to further extend the voltage limit for a junction isolated process, has been to use a lateral D-MOS device together with the resurf principle” and then references the Ludikhuize article stating “Exhibit X – Figure II shows a proposal from Philips.” [DX627 at KE001453]

133. Dr. Eklund recognized in 1984 and 1985 that the Ludikhuize article in his possession disclosed a top layer, or P-TOP layer. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 13:4-11]

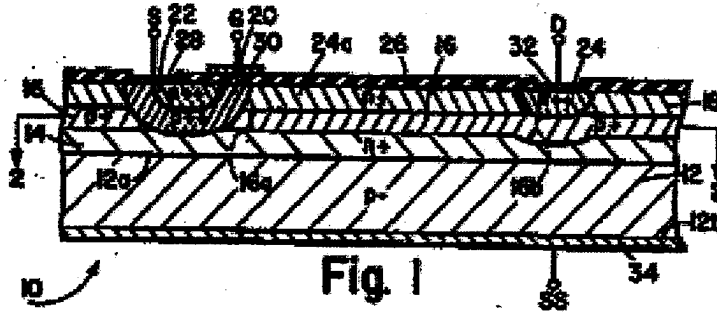
134. Dr. Eklund was aware during the prosecution of the ‘075 patent that the Ludikhuize article taught a P layer on either side of the drain contact pocket over an extended drain region extending laterally each way from the drain contact pocket. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 14:15-22]

135. Dr. Eklund did not disclose the Ludikhuize article to the Patent Office during the prosecution of the ‘075 patent. [(9/20/07 Trial Transcript, Eklund) 1191:1-7, 1193:19-1194:20; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 13:24-14:3]

136. Dr. Eklund did not disclose the Ludikhuize article to his patent attorney during prosecution of the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 12:12-23, 13:21-23; (10/14/05 Eklund Depo.) 232:22-233:2]

REDACTED

138. During prosecution of the '075 Patent, the patent office rejected the claims citing the Colak DMOS patent. [See PX8 at PIF00035; DX89 at Fig. 1]



139. Dr. Eklund responded to this rejection by describing the Colak structure, emphasizing the existence and function of the multiple epitaxial layers in that structure, and making arguments to distinguish the claims of the '075 patent from the Colak patent. [PX8 at PIF00044-PIF00046]

140. Dr. Eklund described the Colak patent as “a DMOS transistor suitable for source follower applications.” [PX8 at PIF00044]

141. The examiner was not convinced and again rejected the '075 invention based on the Colak patent. [PX8 at PIF00049-PIF00053]

142. Dr. Eklund, the prosecuting attorney Mr. Schatzel and the examiner then held a telephone interview to discuss the Colak patent, during which it was agreed that “[n]ew amendments to the claims to be submitted distinguishing applicant’s channel structure and surface adjoining layer 27 over Colak.” [PX8 at PIF00054]

143. After the telephone interview, Dr. Eklund amended his claims by adding for the first time the limitation requiring that the P-TOP layer in the claims of the '075 patent be “surface adjoining.” [PX8 at PIF00055]

144. Dr. Eklund explicitly distinguished over Colak by pointing out that the layer in the Colak patent corresponding to the P-TOP layer of the patent “is not surface-adjoining but is

buried under layer 18.” [PX8 at PIF00056]

145. In response to Dr. Eklund’s amendment, the examiner allowed the pending claims and the ‘075 patent issued. [PX8 at PIF00061]

146. At no point during the exchanges with the examiner regarding the Colak reference and distinguishing the claims of the ‘075 patent based on the inclusion of a “surface adjoining” P-TOP layer did Dr. Eklund disclose the Ludikhuize reference. [PX8]

147. In 1991 Dr. Eklund filed the application for U.S. Patent 5,146,298 (“‘298 patent”). [DX192; DX472; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:14-21]

148. The invention in the ‘298 patent was a DMOS device with a P-TOP layer, but unlike the ‘075 patent, the layer was “not on the top” rather it was “beneath the oxide.” [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:21-31:17; DX192; DX472]

149. During prosecution of the ‘298 patent, Dr. Eklund disclosed the Ludikhuize reference as prior art. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 31:18-22]

150. In the ‘298 patent application, Dr. Eklund described the Ludikhuize reference as adding a “surface layer of p-type doping” in order to “improve thin layer lateral D-MOS transistors as a source follower”:

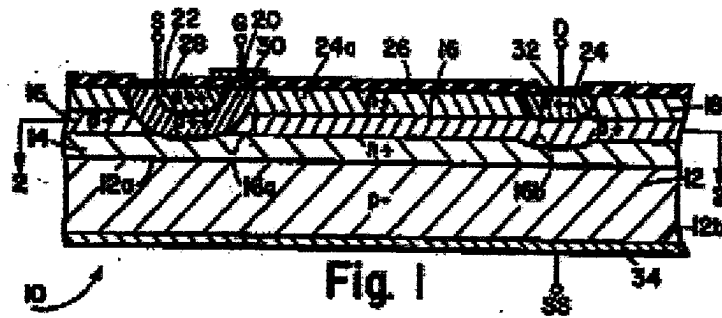
“In order to improve thin layer lateral D-MOS transistors as a source follower and further reduce resistance when the device is “on,” a surface layer of p-type doping has been added. The modified device can be considered a D-MOS transistor in series with a double-sided JFET. See for example, A.W. Ludikhuize, High-Voltage DMOS and PMOS in Analog IC’s, IEDM, pp. 81-84 (1982).

[DX472 at FCS1685959-FCS1685960]

G. DMOS

151. During prosecution of the ‘075 Patent, the Patent Office rejected the claims citing the Colak DMOS patent. [PX8 at PIF00035]

152. The Patent Office stated that “Colak shows a DMOS device wherein layer 16 may perform the function of a JFET ‘on top of’ an extended drain region 14 in the embodiment of figs. 2B or 2C.” [PX8 at PIF00035]



153. Dr. Eklund responded, attempting to distinguish over Colak by stating that the '075 invention:

“provides for a pair of laterally spaced source and drain pockets within the substrate as is customary for conventional MOS transistors and is thus, distinguished from DMOS devices which require a higher threshold voltage.”

[PX8 at PIF00045 (emphasis in original)]

REDACTED

155. The examiner was not convinced with the argument distinguishing over Colak, and again rejected the '075 invention based on Colak. [PX8 at PIF00050]

156. The examiner stated that “Colak teaches punch through and avalanche protection layer 16 for a DMOS device. To one of ordinary skill it would have been obvious to practice the teachings of Colak in other MOS devices as ordinary fets as shown in Size.” [PX8 at PIF00051]

157. Dr. Eklund, the prosecuting attorney Mr. Schatzel and the examiner then held a telephone interview to discuss the “Colak” reference. [PX8 at PIF00054; (9/15/05 Schatzel Depo.) 124:18-125:10]

158. Dr. Eklund does not recall telling the examiner that he was referring to any special definition of DMOS during his interview with the examiner. [(10/2/06 Trial Transcript, Eklund) 254:23-255:9]

159. After a telephone interview with the examiner, Dr. Eklund once again distinguished over Colak by stating of the '075 invention:

"Claim 19 further provides for a substrate having a surface, an insulating layer on the surface of the substrate covering at least that portion between the source contact pocket and the nearest surface-adjointing position of the extended drain, and a gate electrode on the insulating layer electrically isolated from the substrate region thereunder which forms a channel laterally between the source contact pocket and the nearest surface-adjointing position of the extended drain region. Thus, claim 19 is limited to a MOS or MOSFET structure, while Colak shows a D-MOS device. The MOSFET structure has a lower threshold voltage than a D-MOS device (0.7 volts compared to two-four volts for the D-MOS device) and thus, is directly compatible with five volt logic. D-MOS devices usually require an additional power supply of ten to fifteen volts for driving the gate. The MOSFET structure has less on-resistance and thus, further reduces the total on-resistance of the combined structure (MOSFET plus double-sided JFET)."

[PX8 at PIF00057 (emphasis in original)]

160. In the '298 DMOS patent Dr. Eklund referred back to the '075 patent as describing an invention that was "not D-MOS":

"An efficient and simplified way to incorporate a thin layer lateral high voltage MOS transistor which constitutes a series combination of a normal MOS transistor (not D-MOS) and a double-side JFET is described in U.S. Patent Number 4,811,075."

[DX472 at FCS1685960]

161. Dr. Eklund made this statement in the '298 patent and swore that it was true and correct. [(10/2/06 Trial Transcript, Eklund) 245:6-247:7; (10/14/05 Eklund Depo.) 213:16-214:1]

162. Fairchild argued in this case that Dr. Eklund's statements in the prosecution history disclaimed all DMOS devices, because in DMOS devices the channel is formed within a subsequently doped body region in which the source pocket is formed and the channel is not formed "within the substrate." [DI403 at pp. 3-4]

163. Power Integrations argued in this case that "these statements refer to the specific Colak device" and that during prosecution Dr. Eklund disclaimed only the specific DMOS device in Colak, but not all DMOS devices. [DI408 at pp. 3-4]

164. The Court held that Dr. Eklund disclaimed only the specific DMOS device in

Colak but not all DMOS devices. [DI409 at pp. 3-4]

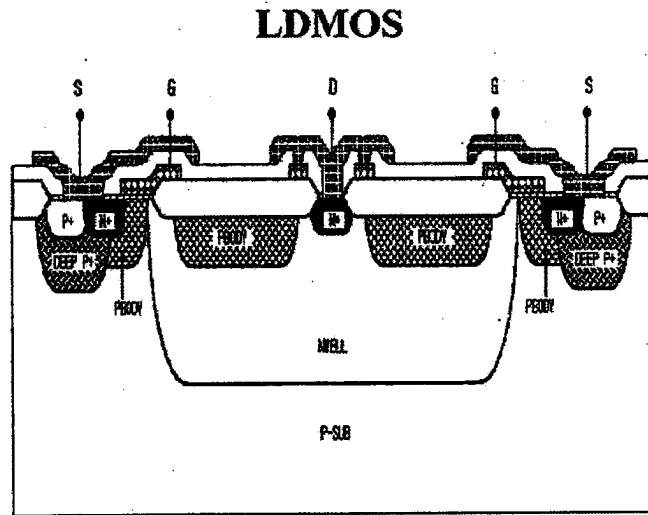
REDACTED

171. During the infringement phase of trial, Dr. Eklund testified that DMOS is a type of MOS. [(10/2/06 Trial Transcript, Eklund) 258:9-16]

172. During the infringement phase of trial, Dr. Eklund testified that there was nothing in his '075 patent that excluded the possibility that a DMOS device is covered by his invention. [(10/2/06 Trial Transcript, Eklund) 259:10-13]

173. During the infringement phase of trial Mr. Shields, Power Integrations' technical expert, testified regarding the Fairchild LDMOS structure. [PX272; 386:17-25, (10/3/06 Trial

Transcript, Shields) 404:22-411:12]



174. Mr. Shields testified during the infringement phase that in the source area of Fairchild's device there is a "double diffused pocket." [(10/3/06 Trial Transcript, Shields) 410:18-411:1]

175. Mr. Shields testified during the infringement phase that all of Fairchild's products were made with an n+ source completely surrounded by a PBody region. [(10/3/06 Trial Transcript, Shields) 411:7-12]

176. Mr. Shields testified during the infringement phase that there was no place within the Fairchild device in which the N+ source contacts the area of the substrate which is still unmodified by subsequent doping. [(10/3/06 Trial Transcript, Shields) 411:24-412:7]

177. Mr. Shields testified during the infringement phase that Fairchild's device "is an unusual type of DMOS structure." [(10/3/06 Trial Transcript, Shields) 410:18-411:1]

178. Mr. Shields testified during the infringement phase that the PBody and deep P region makes the substrate "more of what it was." [(10/3/06 Trial Transcript, Shields) 410:23-411:6]

179. Mr. Shields testified during the infringement phase with respect to Fairchild's device that adding additional P-dopant in the area around the source pocket does not make the source pocket no longer in the substrate because when you put the same dopant, with a P body

and P substrate, the channel is in the substrate. [(10/3/06 Trial Transcript, Shields) 398:4-399:9]

REDACTED

181. Dr. Eklund's notes showing the Supertex structure was not produced until May 2007, after the infringement trial.

182. Dr. Eklund testified during the inequitable conduct trial that the Supertex structure in the February 20, 1985 notes was a DMOS structure. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 37:2-38:18]

183. Dr. Eklund did not did not remember reading any articles stating how many masks Supertex used to make the N plus source and p-body region. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 39:1-9]

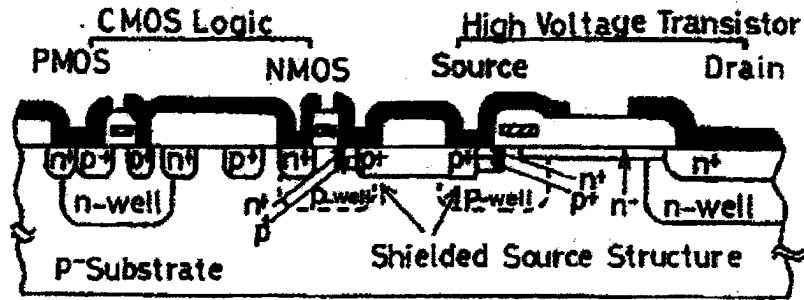
184. The Supertex DMOS structure has a P substrate like Fairchild's LDMOS structure. [DX628; PX272]

185. The Supertex DMOS structure has an n⁺ source in a p body region like Fairchild's LDMOS structure. [DX628; PX272]

186. The Supertex DMOS structure was not disclosed to the Patent Office during prosecution of the '075 patent. [PX4; PX8]

187. In his September 1984 notes, Dr. Eklund referred to the Wakaumi structure as a "DMOS lateral transistor in combination with C-MOS logic." [PX29 at p. 3; DX55; (10/2/06 Trial Transcript, Eklund) 247:8-250:9]

188. The Wakaumi reference discloses the following structure:



[DX55]

189. During the October 2006 infringement trial Dr. Eklund testified that his reference to the Wakaumi article as DMOS in his September 1984 notes was "probably wrong." [(10/2/06 Trial Transcript, Eklund) 256:17-257:5]

190. During the October 2006 infringement trial Dr. Eklund testified that transistor in the Wakaumi reference was "not really" his understanding of what DMOS was at the time of his invention. [(10/2/06 Trial Transcript, Eklund) 250:5-13]

191. Dr. Eklund did not disclose Ludikhuize or any other DMOS reference during prosecution of the '075 patent. [PX4]

192. The Ludikhuize article shows a DMOS device with an extended drain extending each way from the drain contact pocket and P-TOP layer. [DX627 at KE001463; DX56; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 1193:23-1194:3; 14:4-10, 14:15-22]

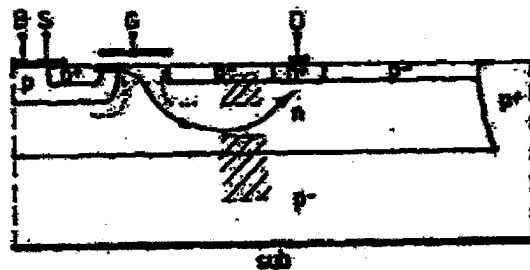


Fig. 2. LDMOS with interrupted p-layer.

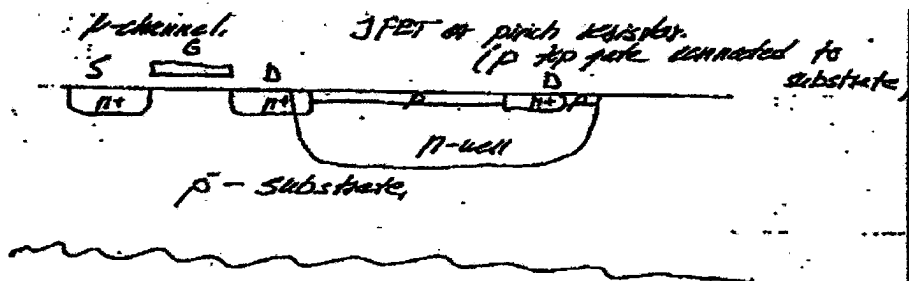
REDACTED

194. Dr. Eklund testified at the inequitable conduct proceeding that the '298 patent "shows a DMOS device." [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:14-31:17]

195. During the prosecution of the '298 DMOS patent, Dr. Eklund disclosed the Ludikhuize DMOS prior art article. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 31:18-22]

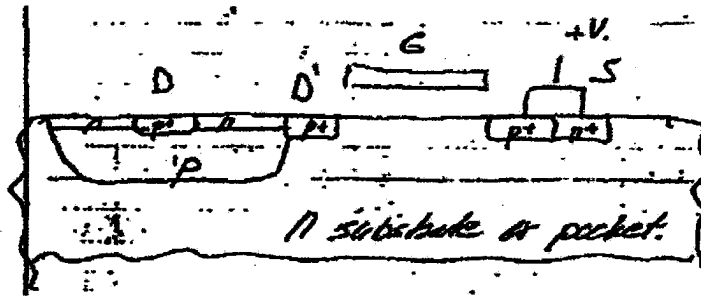
196. Dr. Eklund testified during the inequitable conduct proceedings that the claims of the '075 patent do not cover DMOS: "Yes, from the claim in the '075 patent, it's not a DMOS. But from the realization, it could be a DMOS. But it was not in the claim note." [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 32:13-16]

197. During the October 2006 phase of trial, Dr. Eklund testified that he could not tell whether the structure on the first page of his September 26, 1984 notes was a DMOS structure because it was "very schematic." [(10/2/06 Trial Transcript, Eklund) 235:11-236:12; PX29]

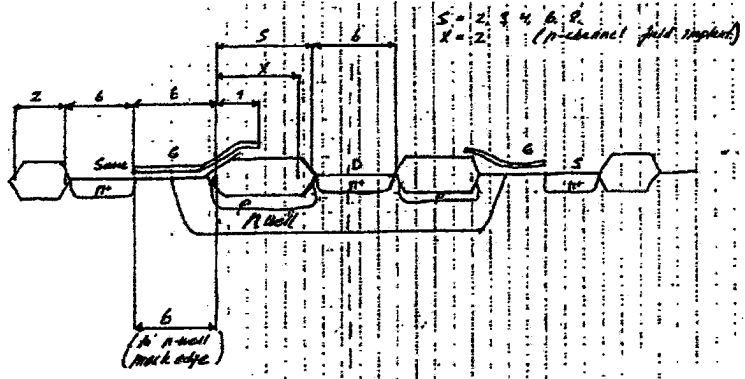


[PX29 at p. 1]

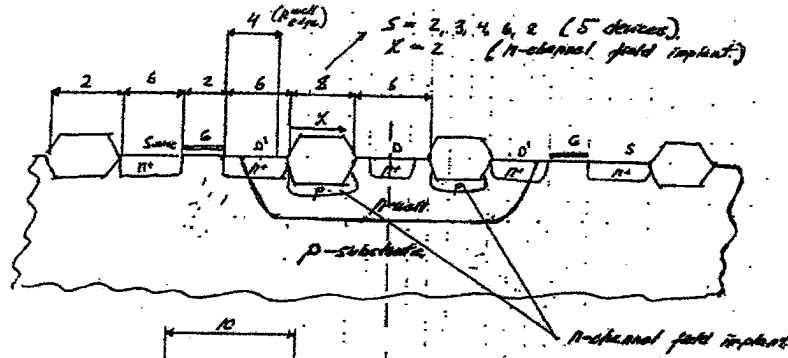
198. During the October 2006 phase of trial, when asked to admit that the structure on the fourth page of his own September 26, 1984 notes was not a DMOS device, he testified that "[i]n a way, you can argue that one, yes." [(10/2/06 Trial Transcript, Eklund) 236:13-237:17; PX29]



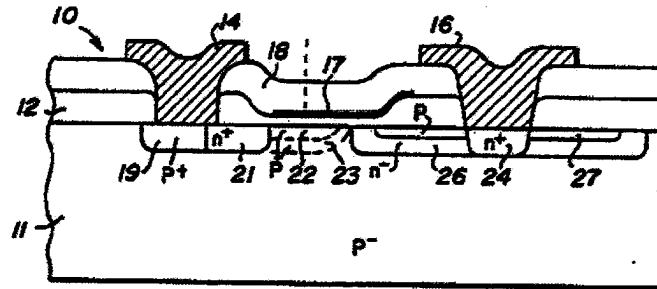
199. During the October 2006 phase of trial, when asked to admit that one of the structures in his purported January 1985 notes was not a DMOS device, he testified that that was “probably” correct. [(10/2/06 Trial Transcript, Eklund) 237:18-238:12; PX30 at p. 2]



200. During the October 2006 phase of trial, when asked to admit that the other structure in his purported January 1985 notes was not a DMOS device, he testified that it was not a DMOS device as shown. [(10/2/06 Trial Transcript, Eklund) 238:13-239:10; PX30 at p. 1]

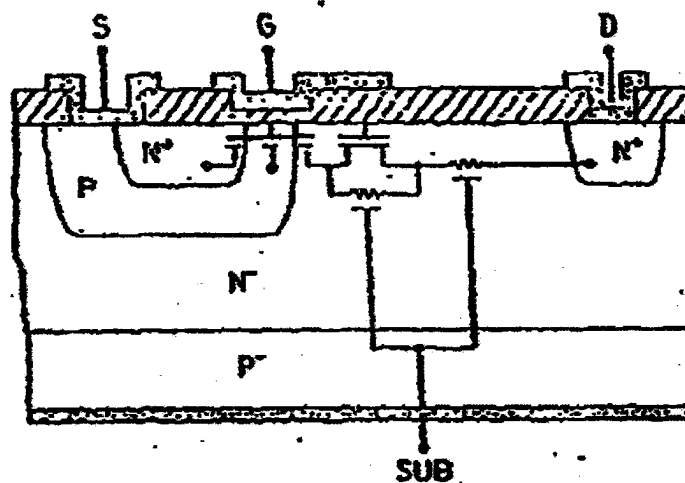


201. During the October 2006 phase of trial, when asked whether the device disclosed on the front page of the '075 patent was a DMOS structure, Dr. Eklund testified "I'm not sure." [(10/2/06 Trial Transcript, Eklund) 239:12-240:20; PX4 at Fig. 1]



202. Power Integrations' technical expert Mr. Shields testified at the October 2006 infringement trial about the "Sun" dissertation, which was published in 1982. [(10/3/06 Trial Transcript, Shields) 402:19-403:7; DX59]

203. Mr. Shields testified that the Sun structure, shown below, with an additional P type diffusion within an N type area, was a DMOS structure that existed before the Eklund patent. [(10/3/06 Trial Transcript, Shields) 403:8-10, 404:7-11; DX59 at FCS1692743]



a. LDMS

204. Mr. Shields testified that the Sun structure had a P- substrate. [(10/3/06 Trial Transcript, Shields) 403:11-15]

205. Mr. Shields testified that the Sun structure's P- substrate was more lightly doped than the P region at the source. [(10/3/06 Trial Transcript, Shields) 403:11-19]

206. Mr. Shields testified that the Sun structure was DMOS because of the additional P type diffusion in the source area, which is double diffused. [(10/3/06 Trial Transcript, Shields) 403:11-404:6]

207. Mr. Shields testified that the Sun structure was DMOS because of the additional P type diffusion in the source area, which is double diffused. [(10/3/06 Trial Transcript, Shields) 403:11-404:6]

H. During Prosecution The Examiner And Dr. Eklund Focused On Structure

208. The examiner stated during prosecution that "Clearly claim 1 does not distinguish over Colak. Note that mere labels as 'JFET' do not structurally distinguish the claims over Colak since the structure of Colak may be labeled an IGFET in series with a double sided JFET as shown." [PX8 at PIF00035]

209. The examiner stated during prosecution that "Claim 2 also does not distinguish over Colak since the claimed structure is shown in Colak and the intended use language 'whereby current flow . . .' in claim 2 does not structurally distinguish over Colak and furthermore Colak's device may perform the intended function." [PX8 at PIF00035 (emphasis in original)]

210. The examiner stated during prosecution that "Claim 5 is a product by process claim which does not structurally distinguish applicant's final product over Colak." [PX8 at PIF00035]

211. Dr. Eklund responded to the initial rejections by emphasizing the claimed

structure of the invention and arguing “[n]one of the cited references show such structure.” [PX8 at PIF00044]

212. Power Integrations’ technical expert Mr. Shields testified that to find all of the elements of the ‘075 patent you need to look at the final structure. [(10/3/06 Trial Transcript, Shields) 404:19-21]

I. Plummer Reference

213. When Dr. Eklund created his October 1984 prior art study, he had an article authored by someone named Plummer who was with the Integrated Circuits Laboratory at Stanford University. [DX627 at KE001454; DX616]

214. The Plummer article was attached as Exhibit I to the prior art study. [DX627 at KE001450, KE001454; DX616]

215. The article was entitled “Monolithic MOS High Voltage Integrated Circuits.” [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 16:13-23]

216. Dr. Eklund had the Plummer article in his possession during the prosecution of the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 16:13-17:4]

217. The high voltage device in the Plummer article showed an extended drain region of the second conductivity type extending laterally each way from the drain contact pocket to surface adjoining positions. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 17:6-17; (9/20/07 Trial Transcript, Eklund) 1192:4-1193:12; (6/7/07 Eklund Depo.) 474:14-476:11]

REDACTED

219. In his October 1984 prior art study Dr. Eklund states regarding the Plummer Article “Exhibit I – Figure I shows the principal crossection for offset gate and lightly doped drain.” [DX627 at KE001450]

REDACTED

221. Dr. Eklund did not disclose the Plummer article to the Patent Office during prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 16:13-17:4]

J. Wakaumi Reference

222. When Dr. Eklund created his October 1984 prior art study, he had the Wakaumi article which was discussed in his September 1984 notes. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 17:18-18:12; DX627 at KE001455; DX55]

223. The Wakaumi article was attached as Exhibit II to the prior art study. [DX627 at KE001455, KE001450; DX55]

224. In the prior art study, Dr. Eklund states regarding the Wakaumi article "Exhibit II – Figure I shows a 400V device from NEC where they use an ion implanted extended drain region and shielded source structure which prevents possible bipolar breakdown. The shielded source structure also implies a shorter extended drain region and thus makes a more efficient device." [DX627 at KE001450]

225. Dr. Eklund did not disclose the Wakaumi reference to the Patent Office. [(9/20/07 Trial Transcript, Eklund) 1187:16-1188:1; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 10:18-21, 18:2-9]

REDACTED

K. Fujii Reference

227. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Fujii, among others, who was with Sharp Corporation. [DX627 at KE001456; (6/7/07 Eklund Depo.) 476:15-21; DX617]

228. The article was published in 1981 and was entitled "400 Volt MOS IC for EL Display." [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 18:13-22; DX627 at KE001456; DX617]

229. The Fujii article was attached as Exhibit III to the prior art study. [DX627 at KE001456, KE001450; DX617]

230. Dr. Eklund had the Fujii article in his possession during the prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 18:13-19:14]

REDACTED

232. The high voltage device by Sharp had an extended drain region of the second conductivity type extending laterally each way from the drain contact pocket to surface-adjointing positions. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 18:13-19:7; (9/20/07 Trial Transcript, Eklund) 1192:13-17; (6/7/07 Eklund Depo.) 477:14-478:6, 485:3-13]

233. Dr. Eklund did not disclose the Fujii article to the Patent Office during prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 19:8-14]

L. Yamaguchi Reference

234. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Yamaguchi, among others, who was with Tektronix, Inc. [DX627 at KE001457; DX618; (6/7/07 Eklund Depo.) 478:7-16]

235. The article, published in approximately 1981, is entitled "Process and Device Design of a 1,000 Volt MOS IC." [DX618; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 19:19-24; (6/7/07 Eklund Depo.) 478:14-19]

236. The Yamaguchi article was attached as Exhibit IV to the prior art study. [DX627 at KE001457, KE001450; DX618]

237. In the prior art study, Dr. Eklund states regarding the Yamaguchi article that "[t]he highest voltage reported thus far is 1000 volt (Tektronix, Exhibit IV – Figure I) using somewhat similar structures." [DX627 at KE001450]

238. Dr. Eklund had the Yamaguchi article in his possession during the prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 19:19-20:8; (6/7/07 Eklund Depo.) 478:20-22]

239. The high voltage device in the Yamaguchi article showed an extended drain region of a second conductivity type extending laterally each way from the drain contact pocket

to surface adjoining positions. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 20:13-21:17; (9/20/07 Trial Transcript, Eklund) 1192:18-23; (6/7/07 Eklund Depo.) 479:9-480:20]

REDACTED

241. Dr. Eklund did not disclose the Yamaguchi article to the Patent Office during prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 19:19-20:8]

M. Tihanyi Reference

242. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Tihanyi who was with Siemens AG. [DX627 at KE001458; DX620; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 23:2-17]

243. The article was entitled "Integrated Power Devices." [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 23:2-5]

244. The Tihanyi article was attached as Exhibit V to the prior art study. [DX627 at KE001458, KE001450; DX620]

245. In the prior art study, Dr. Eklund states regarding the Tihanyi article: "[u]sing a D-MOS transistor and the resurf principle (an epi layer of opposite polarity, see Exhibit V – Figure 4) the current capability can be increased considerably." [DX627 at KE001450]

246. Dr. Eklund had the Tihanyi article in his possession during the prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 23:2-13]

247. The high voltage device by Siemens had an extended drain region of the second conductivity type extending laterally each way from the drain contact pocket. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 23:18-24:8; (9/20/07 Trial Transcript, Eklund) 1192:24-1193:8; (6/7/07 Eklund Depo.) 486:2-24]

248. Dr. Eklund did not disclose the Tihanyi article to the Patent Office during prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 23:2-13]

N. Wrathall Reference

249. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Wrathall, among others, who was with Motorola, Inc. [DX627 at KE001459; DX619]

250. The article is entitled "Integrated Circuits for Control of High Power." [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 20:18-22:12]

251. The Wrathall article was attached as Exhibit VI to the prior art study. [DX627 at KE001459, KE001451; DX619]

252. In the prior art study, Dr. Eklund states regarding the Wrathall article and devices by Motorola: "the applications so far have been restricted to multiple output devices, if one on the other hand needs just one very high performance output transistor. Once can use a substrate transistor with a performance similar to a discrete one. This was started out in bipolar technology, see Exhibit VI – Figure 2 and 4. In Smartpower II Motorola uses a D-MOS verticle transistor in combination with C-MOS logic in a structure which is very similar to the Nationals. Application areas for this high current high voltage devices are shown in Figure I. By the way, the Motorola Smartpower I device was developed especially for the automotive industry where there is a large need for high performance PNP drivers." [DX627 at KE001451]

253. Dr. Eklund had the Wrathall article in his possession at the time that he was prosecuting the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 22:10-20]

254. The high voltage device by Motorola showed an extended drain region going both ways from the drain contact pocket. [(9/20/07 Trial Transcript, Eklund) 1193:9-18]

255. Dr. Eklund did not disclose the Wrathall article to the patent office during prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 22:10-23:1]

O. Pomper Reference

256. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Pomper, among others. [DX627 at KE001460; DX621; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 24:9-12, 25:14-18]

257. The article is entitled “High Voltage DIMOS Driver Circuit.” [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 24:9-12]

258. The Pomper article was attached as Exhibit VII to the prior art study. [DX627 at KE001460, KE001451; DX621]

259. In the prior art study, Dr. Eklund states regarding the Pomper article that “If one, for example, uses N-channel transistors in a push-pull configuration, both the source and the drain have to withstand the high voltage. For transmitting the high voltage through the pull up transistor, one needs the high voltage on the gate, this has to be created through some level shifting arrangements. The high voltage on the gate will require a thicker oxide than for the low voltage devices. Exhibit VII – Figure II shows an example of how this can be realized using D-MOS transistors. For level shifting they use a bootsharp precharge technique, see Figure V.” [DX627 at 1451]

260. Dr. Eklund had the Pomper article in his possession at the time that he was prosecuting the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 24:9-18]

261. The high voltage device by Motorola showed an extended drain region of the second conductivity type extending laterally each way from the drain contact pocket. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 25:1-10; (9/20/07 Trial Transcript, Eklund) 1193:9-18]

262. Dr. Eklund did not disclose the Pomper article to the Patent Office during prosecution of the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 24:19-24]

P. Rumennik Reference

263. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Rumennik, among others. [DX627 at KE001461; DX622; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 25:19-26:2, 26:24-27:2]

264. The article is a 1982 article entitled “Integrated High and Low Voltage CMOS Technology.” [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 25:23-26:2; (6/7/07 Eklund Depo.) 492:2-9]

265. The Rumennik article was attached as Exhibit VIII to the prior art study. [DX627

at KE001461, KE001451; DX622]

266. In the prior art study, Dr. Eklund states regarding the Rumennik article "One generally needs a high voltage N-channel and P-channel transistor for effective level shifting. Another drawback using two N-channel transistors is that for high voltage, the pull-up transistor will have a higher threshold voltage from heavy back biasing which will be seen as a voltage drop between the source and the drain. A proposal from Xerox, Exhibit VIII – Figure I, seems then much more attractive. Here they use C-MOS where they have applied the extended drain concept for both the N-channel and P-channel device (Note: for C-MOS. just the drains for the two transistors and the, well of course, have to withstand the high voltage. For the P-channel device, they further use the resurf principle e.g., the well under the drain should be well depleted before breakdown between drain and well. Furthermore, this is fully compatible with low voltage C-MOS logic, in fact they use the same well 5 um deep both for the high voltage and low voltage devices. In the paper, they report working devices up to 200 volt." [DX627 at KE001451-KE001452]

267. Vladimir Rumennik, the author, later went to work at Power Integrations. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 26:6-8]

268. Dr. Eklund had the Rumennik article in his possession at the time that he was prosecuting the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 26:9-12]

269. The high voltage device in the Rumennik article showed an extended drain region of the second conductivity type extending laterally each way from the drain contact pocket surface adjoining positions. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 27:21-28:5; (6/7/07 Eklund Depo.) 487:1-12]

REDACTED

271. Dr. Eklund did not disclose the Rumennik article to the Patent Office during the prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 26:16-23]

Q. DesCamps Reference

272. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named DesCamps, among others, who was with Thomson CSF. [DX627 at KE001462; DX623; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:6-9]

273. The article is entitled "Integrated High-Voltage Video Amplifier for Color TV." [DX627 at KE001462; DX623; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:6-9]

274. The DesCamps article was attached as Exhibit IX to the prior art study. [DX627 at KE001462, KE001452; DX623]

275. In the prior art study, Dr. Eklund states regarding the DesCamps article "Exhibit I – Figure II shows the principle structure in a junction isolated process where a lateral D-MOS transistor is used. a more effective solution should be to use a vertical D-MOS structure similar to the one which is used for discrete power D-MOS devices. This approach has been taken by Thompson CSF, Exhibit IX – Figure 2, on a 7 ohm cm 20um thick epi 200 volts drain-source breakdown voltage has been achieved, they use this for an Integrated Video Amplifier. In the same structure, the breakdown voltage for a bipolar NPN transistor should be below 100 volt. So this is then an improvement in voltage capability by a factor of two. Note that they also use the inherent bipolar transistors in the structure. To use them, if they can handle two voltage, seems to be the general case as they still are more area effective than the D-MOS transistor." [DX627 at KE001452]

276. Dr. Eklund had the DesCamps article in his possession at the time that he was prosecuting the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:6-13]

277. Dr. Eklund did not disclose the DesCamps article to the Patent Office during the prosecution of the '075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:6-16]

R. Alvarez Reference

278. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Alvarez, among others, who was with Motorola. [DX627 at KE001464; DX624]

279. The article is entitled “Lateral DMOS Transistor Optimized for High Voltage BIMOS Applications.” [DX624; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:17-29:3]

280. The Alvarez article was attached as Exhibit XI to the prior art study. [DX627 at KE001464, KE001453; DX624]

281. In the prior art study, Dr. Eklund states regarding the Alvarez article “An interesting approach to further extend the voltage limit for a junction isolated process, has been to use a lateral D-MOS device together with the resurf principle. . . . Exhibit XI – Figure II shows a proposal from Motorola.” [DX627 at KE001453]

282. Dr. Eklund had the Alvarez article in his possession at the time that he was prosecuting the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:17-3]

283. Dr. Eklund did not disclose the Alvarez article to the Patent Office during the prosecution of the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 28:17-29:6]

S. Mattheus Reference

284. When Dr. Eklund created his October 1984 prior art study, he had an article by someone named Mattheus, who was with Bell Telephone. [DX627 at KE001465; DX625]

REDACTED

286. Dr. Eklund had the Mattheus article in his possession at the time that he was prosecuting the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 29:7-14]

287. Dr. Eklund did not disclose the Mattheus article to the Patent Office during the prosecution of the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 29:7-14]

T. Colak Reference

REDACTED

289. Dr. Eklund had the Colak article in his possession at the time that he was prosecuting the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 29:15-24]

290. Dr. Eklund did not disclose the Colak article to the Patent Office during the prosecution of the ‘075 patent. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 29:15-3]

291. In 1991 Dr. Eklund filed the application for U.S. Patent 5,146,298 (“‘298 patent”). [DX192; DX472; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:14-21]

292. The ‘298 patent disclosed a DMOS device that included as part of the invention a P-TOP layer that was not on top. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:21-31:17]

293. In the later patent, Dr. Eklund disclosed the Colak article as prior art. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 31:23-32:2]

U. Philips “Resurf” Articles

302. Dr. Eklund did not disclose the Philips “resurf” articles, including the Appels article, to the patent office during the prosecution of the ‘075 patent. [PX4 at p. 1]

303. One of these “resurf” articles was by someone named Appels. [(10/14/05 Eklund Depo.) 53:5-8, 229:5-18; DX1005; DX1006]

REDACTED

305. Dr. Eklund had the Appels article in his possession in the 1985/1986 timeframe. (10/14/05 Eklund Depo.) 229:22-25]

306. Dr. Eklund testified that he did not provide the Appels article to the Patent Office because he said that it was “not related to the patent.” [(10/14/05 Eklund Depo.) 230:4-12]

307. Dr. Eklund does not remember whether he ever provided the Appels article to Mr. Schatzel. [(10/14/05 Eklund Depo.) 229:1-3]

V. Binder Of 50 To 100 Articles

308. In the fall of 1984, Dr. Eklund had a binder of articles related to high voltage integrated circuits. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 11:10-12:2]

309. There were approximately 50 to 100 articles in the binder. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 12:3-5; (10/14/05) 51:19-52:3]

REDACTED

312. Dr. Eklund had those 50 to 100 references in his possession during the time frame that he prosecuted the ‘075 patent, from approximately April 1987 until the patent issued in 1989. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 12:6-11]

REDACTED

REDACTED

315. Dr. Eklund did not disclose any of the 50 to 100 prior art references in his possession. [PX4]

W. Presentations To AMD

1. The 1984/1985 Presentation

REDACTED

2. The February 10, 1985 Presentation

322. On February 10, 1985, Dr. Eklund created a presentation to AMD, entitled "An Optimized High Voltage MOS Resurf Device." [(6/7/07 Eklund Depo.) 527:18-528:9; PX412]

REDACTED

REDACTED

3. **The March 28, 1985 Proposal**

REDACTED

326. Attached to and part of the proposal Dr. Eklund made reference to the Supertex Approach. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 37:14-17; DX628 at KE001513, KE001520-KE001522]

327. In his notes he drew drawings of the Supertex structure. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 37:24-38:11]

328. The Supertex device included a high voltage DMOS device on the same substrate as CMOS logic. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 39:10-16]

329. At the time, Dr. Eklund had studied Supertex's datasheets and read articles about them, particularly regarding their display driver products. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 37:18-22]

REDACTED

331. Dr. Eklund had some of the Supertex articles in his possession. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 40:6-9]

332. Dr. Eklund disclosed the information he had about Supertex to AMD. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 41:21-24]

333. Dr. Eklund did not disclose any of the Supertex articles to the Patent Office. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 40:6-12; 40:21-41:5]

334. Dr. Eklund did not disclose the "Power and logic devices are merging on the same chip" article to the Patent Office. [PX4]

X. Awareness Of Duty To Disclose Information; No Citation Of Any Prior Art

335. Dr. Eklund understood that he was under a duty to disclose information which was material to the examination of his patent application. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 45:5-17]

336. On April 17, 1987, Dr. Eklund signed the inventor declaration recognizing the duty to disclose information material to the examination of the application. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 44:20-45:20; (10/14/05 Eklund Depo.) 261:7-262:1, 263:10-17; DX102 at FCS150]

REDACTED

340. Dr. Eklund and Mr. Schatzel did not provide any prior art patents or articles to the Patent Office. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:4-7; PX4; PX8; (9/15/05 Schatzel Depo.) 139:14-140:4]

341. The only "References Cited" during the prosecution of the '075 Patent were U.S. Patent No. 4,626,879 to Colak, U.S. Patent No. 4,628,341 to Thomas and Sze, *Physics of Semiconductor Devices* (1981), all cited by the examiner [PX4 at p. 1; (10/14/05 Eklund Depo.) 228:12-24; PX8 at PIF00038, PIF00053]

REDACTED

REDACTED

Y. Dr. Eklund's Experience

345. In 1984, Dr. Eklund went to work at AMD's facility in California. [(9/20/07 Trial Transcript, Eklund) 1087:19-1088:7]

346. When working at the AMD facility Dr. Eklund started to look at possibilities to integrate high voltage devices in connection with low voltage CMOS logic. [(9/20/07 Trial Transcript, Eklund) 1089:5-9]

347. Dr. Eklund had a Ph.D. in electrical engineering. [(9/20/07 Trial Transcript, Eklund) 1086:20-1087:2]

348. In 1984, Dr. Eklund had worked as a device engineer in the semiconductor field for twelve years. [(9/20/07 Trial Transcript, Eklund) 1087:5-18]

Z. Mr. Schatzel's Experience

REDACTED

REDACTED

AA. Data General Spins Off Power Integrations

354. In 1984, Dr. Eklund had worked as a device engineer in the semiconductor field for twelve years. [(9/20/07 Trial Transcript, Eklund) 1087:5-18]

355. Eklund left AMD and went to work at Data General at the beginning of 1986 in order to realize the '075 concept. [(10/2/06 Trial Transcript, Eklund) 225:21-227:16; (10/14/05 Eklund Depo.) 88:4-6]

356. Data General spun off Eklund's invention as a new independent company. [(10/2/06 Trial Transcript, Eklund) 227:20-228:6; (10/14/05 Eklund Depo.) 88:9-25]

357. That new company was Power Integrations. [(10/2/06 Trial Transcript, Eklund) 228:7-8; (10/14/05 Eklund Depo.) 88:9-25]

358. Klas Eklund was one of the founders of Power Integrations. [(9/20/07 Trial Transcript, Eklund) 1085:24-1086:2]

359. Eklund was a Vice President of Engineering and was on Power Integrations' Board of Directors. [(10/2/06 Trial Transcript, Eklund) 228:18-229:7; (9/20/07 Trial Transcript, Eklund) 1152:8-15]

360. The application for the '075 patent was filed on April 24, 1987. [PX4 at p.1; (9/20/07 Trial Transcript, Eklund) 1150:10-13]

REDACTED

362. Power Integrations was formed after Dr. Eklund filed his patent application.

[(9/20/07 Trial Transcript, Eklund) 1120:17-1121:1]

BB. Letter To Investors

REDACTED

364. Data General and others were investors in Power Integrations. [(10/2/06 Trial Transcript) 228:12-17; (10/14/05 Eklund Depo.) 88:9-89:3]

REDACTED

366. In 1988, Dr. Eklund's attorney Tom Schatzel sent a letter to Power Integrations and its investors. [PX50 at KE00012; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 3:9-23]

REDACTED

369. The letter was sent after Dr. Eklund's patent application was filed and after the first office action had occurred. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 3:24-4:16]

REDACTED

371. In the letter, through his attorney, Dr. Eklund was advising investors of the status of the patent application. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 4:17-20]

REDACTED

373. The letter stated that Mr. Schatzel had not conducted or been authorized to conduct an independent "patent search." [PX50 at KE00012; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 5:3-7]

374. In the letter he stated “[t]he only patents that we know of, are those which were cited by the U.S. Patent & Trademark Office.” [PX50 at KE00012; (9/21/07 Ineq. Conduct Trial Transcript, Eklund) 8:1-6]

CC. Transfer Of Patent Application For Power Integrations Stock

375. Based upon the letter from Mr. Schatzel, Dr. Eklund was able to transfer the ‘075 patent to Power Integrations. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund); 211:2-5 (10/14/05 Eklund Depo.) 8:23-9:2]

376. As a result of the know-how and the patent application, Dr. Eklund received approximately 660,000 shares of Power Integrations stock. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 8:17-22; (10/14/05 Eklund Depo.) 211:6-9]

377. Later Dr. Eklund sold much of the 660,000 shares of stock. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 9:3-5]

378. He made approximately \$5 million on the sale of those shares. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 9:6-19; (10/14/05 Eklund Depo.) 211:10-14, 212:2-6]

DD. Notes Provided To Patent Prosecution Attorney

REDACTED

EE. Statement That Eklund Only Looked At Prior Art Cited By Examiner

REDACTED

382. Dr. Eklund did not produce his prior art memo in this case until May 2007, on the

eve of the trial scheduled for June 2007. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 41:6-42:4; DI 491]

FF. Testimony About The Background Section Of The '075 Patent

383. The background section of the '075 patent application and patent does not disclose the particular structure of any prior art device, publication or patent. [PX4 at 1:15-50]

384. The background section of the '075 patent application and patent does not discuss the existence and nature of any type of "P-TOP" or "extended drain" structures. [PX4 at 1:15-50]

385. The background section of the '075 patent application and patent does not discuss the structure of any particular prior art combining high and low voltage devices on the same chip. [PX4 at 1:15-50]

386. The background section of the '075 patent application and patent states an average of the resistance value of a device when it is on but does not disclose any actual structure of any averaged device. [PX4 at 1:15-50]

REDACTED

389. The prior art background section of the '075 patent says that "For optimum performance, the net number of charges should be around $1 \times 10^{12}/\text{cm}^2$." [PX4 at 1:30-32]

390. The Appels article concludes "The use of high-ohmic substrates with relatively thin epitaxial layers on them, which meet the requirements mentioned in this paper (i.e. $N_{\text{epi}} \times d_{\text{epi}} \approx 10^{12} \text{ at}/\text{cm}^2$)."

REDACTED

REDACTED

392. At the inequitable conduct proceeding, when asked whether he provided any prior art, Dr. Eklund testified “[j]ust the averaging in the background, where I took the averages of all the articles we have.” [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 30:4-11, 5:21-6:1]

REDACTED

394. By “averaging” the prior art, Dr. Eklund did not mean that he actually provided the prior art document, article or publication to the Patent Office. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 7:6-13]

REDACTED

GG. Communications Between Dr. Eklund And Mr. Schatzel

396. Dr. Eklund testified that he thought that he had most of the communications with Mr. Schatzel. [(9/21/07 Ineq. Conduct Trial Transcript, Eklund) 70:6-17]

397. Dr. Eklund and Power Integrations have refused to produce any of the correspondence with Mr. Schatzel, asserting the attorney client privilege. [(10/14/05 Eklund Depo.) 67:5-11; DX633]

REDACTED

IV. POWER INTEGRATIONS COMMITTED INEQUITABLE CONDUCT DURING THE PROSECUTION OF THE ‘851 PATENT.

399. U.S. Patent No. 6,107,851 (the “‘851 Patent”) is entitled “Offline Converter with

Integrated Softstart and Frequency Jitter.” [DX105 (‘851 Patent)].

400. Balu Balakrishnan, Alex Djenguerian, and Leif Lund are named as the inventors of the ‘851 Patent. [DX105 (‘851 Patent)].

401. The three inventors of the ‘851 and ‘366 patents, Balu Balakrishnan, Alex Djenguerian, and Leif Lund, signed a Power Integrations invention disclosure form on March 26, 1998, March 25, 1998, and April 2, 1998, respectively. [PX326]

402. During trial, Mr. Balakrishnan testified that the ‘851 Patent “is about frequency jittering to reduce EMI.” [(9/19/07 Trial Transcript, Balakrishnan) 879:24-880:4]

403. The application leading to the ‘851 Patent was filed on May 18, 1998. [DX105 (‘851 Patent)].

404. The ‘851 Patent issued on August 22, 2000. [DX105 (‘851 Patent)].

REDACTED

406. The ‘851 Patent states that “the field of the present invention pertains to the field of power supplies and among other things to the regulation of power supplies.” [DX105 (‘851 Patent) at 1:6-8]

407. All of the claims of Power Integrations ‘851 Patent require a “frequency variation circuit” that causes the frequency of the oscillator to vary. [DX105 (‘851 Patent) at claims 1 and 11)].

408. All of the claims of Power Integrations ‘851 Patent require a “an oscillator that provides an oscillation signal having a frequency range, said frequency of said oscillation signal varying within said frequency range according to said frequency variation signal, said oscillator further providing a maximum duty cycle signal comprising a first state and a second state”. [DX105 (‘851 Patent) at claims 1 and 11].

409. Power Integrations claims that the circuit claimed in the ‘851 Patent will reduce electromagnetic interference or “EMI”.

410. Mr. Balakrishnan admits that the problem of EMI has been around before the '851 Patent. [(9/19/07 Trial Transcript, Balakrishnan) 881:3-16]

411. Mr. Balakrishnan admits that Power Integrations did not invent the idea of power supplies. [(9/20/07 Trial Transcript, Balakrishnan) 941:14-17]

412. Mr. Balakrishnan admits that Power Integrations did not invent the switch mode power supply. [(9/19/07 Trial Transcript, Balakrishnan) 878:2-4; (9/20/07 Trial Transcript, Balakrishnan) 941:18-22]

413. Mr. Balakrishnan admits that Power Integrations did not invent the idea of frequency jitter. [(9/20/07 Trial Transcript, Balakrishnan) 942:2-4]

REDACTED

415. The SMP3, SMP260, their datasheets and schematics, and the Keller and Goodenough articles withheld during the prosecution of the '366 Patent should also have been provided to the Patent Office during the prosecution of the '851 Patent. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 159:11-22]

A. The Claims Only Issued Because the Power Integrations Withheld Prior Art and Misled the Examiner.

1. Power Integrations' inventors withheld prior art.

416. Mr. Balakrishnan considers himself very knowledgeable about the field of power supplies. [(9/21/07 Ineq. Conduct Trial Transcript, Balakrishnan) 64:16-18]

417. Mr. Balakrishnan knew that the Patent Examiner was not as familiar with the relevant prior art as he was. [(9/21/07 Ineq. Conduct Trial Transcript, Balakrishnan) 64:8-12]

418. Mr. Balakrishnan thinks that it is a good assumption that his knowledge of power supplies would be greater than the knowledge of whichever Examiner happens to receive the patent application he files. [(9/21/07 Ineq. Conduct Trial Transcript, Balakrishnan) 64:19-65:1]

419. Figure 1 of the '851 Patent is labeled "PRIOR ART". [DX105 ('851 Patent) at Fig. 1]

420. Figure 1 of the '851 Patent is described as "a known power supply utilizing both a pulse width modulated switch, and external soft start, and frequency fitter functionality." [DX105 ('851 Patent) at 4:37-39]

421. Mr. Balakrishnan agrees that Figure 1 of the '851 Patent is prior art. [(9/20/07 Trial Transcript, Balakrishnan) 943:16-944:3]

422. Mr. Balakrishnan admits that Figure 1 of the '851 Patent shows one way of dealing with EMI in power supplies that was known before the '851 Patent. [(9/19/07 Trial Transcript, Balakrishnan) 881:17-882:6]

423. The '851 Patent states, "Referring to FIG. 1 a known power supply that attempts to minimize EMI and reduce startup stress is depicted." [DX105 ('851 Patent) at 2:27-28]

424. As filed in the original application, Figure 1 was not labeled "PRIOR ART". [DX106 ('851 Pros. Hist.) at FCS0000380]

425. During the prosecution of the '851 Patent, the Examiner issued an Office Action dated August 17, 1999 that stated "Fig. 1 should be designated by a legend such as-Prior Art- because only that which is old is illustrated." [DX106 ('851 Pros. Hist.) at FCS0000423]

426. During the prosecution of the '851 Patent, the Applicants filed an "Amendment and Response to Election Requirement dated November 2, 1999 in which they stated "In response to the Election Requirement" mailed August 18, 1999, it is proposed by the Examiner that Figure 1 be designated by a legend such as-Prior Art -. Accordingly, the Applicants submit a proposed drawing correction in the form of a red-mark original of Figure 1." [DX106 ('851 Pros. Hist.) at FCS0000431]

427. During the prosecution of the '851 Patent, the Applicants filed an "Amendment and Response to Election Requirement" dated November 2, 1999 in which they submitted an amended version of Figure 1 that added the legend "(Prior Art)". [DX106 ('851 Pros. Hist.) at FCS0000433]

428. Prior Art Figure 1 of the '851 Patent is set forth below:

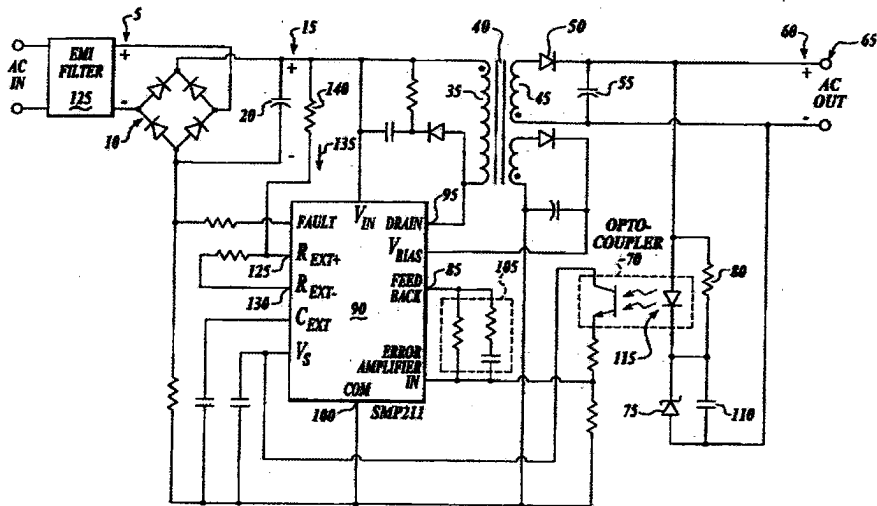


Fig. 1 (PRIOR ART)

[DX105 ('851 Patent), Fig. 1]

429. "Switch 90" is depicted in Prior Art Figure 1 as the SMP211. [DX105 ('851 Patent), Fig. 1]

2. **Power Integrations' claims were rejected because of the admitted prior art in Figure 1.**

430. After the Applicants canceled claims in response to the Examiner's restriction requirement, the application for the '851 Patent contained independent claims-claim 1 and claim 29. [DX106 ('851 Pros. Hist.) at FCS0000370-379, 431-432, & 436-441]

431. Original claim 29 of the '851 Patent application was amended, renumbered, and issued as claim 11 of the '851 Patent. [DX106 ('851 Pros. Hist.) at FCS0000444-450 & 459-463]

432. As originally filed in the application leading to the '851 Patent, claims 1 and 29 required identical first terminal, second terminal, switch, and frequency variation elements. [DX106 ('851 Pros. Hist.) at FCS0000370 and 377]

433. As originally filed in the application leading to the '851 Patent, claim 1 required "an oscillator that provides an oscillation signal having a frequency range, said frequency of said oscillation signal varying within said frequency range according to said frequency variation

signal, said oscillator further providing a maximum duty cycle signal comprising a first state and a second state” while 29 claim did not require any oscillator. [DX106 (‘851 Pros. Hist); *compare* FCS0000370 (claim 1) and FCS0000370-71 (claim 29)]

434. During the prosecution of the ‘851 Patent, the Examiner issued an Office Action dated December 13, 1999 in which the Examiner rejected claims 4-6, 9 & 29-37 while allowing claims 1-3, 7, 8 & 10. [DX106 (‘851 Pros. Hist.) at FCS0000436]

435. The Examiner considered the pending claims and rejected claim 29 (and claims that depended from it) because the Prior Art Figure 1 included every element:

Claim Rejections-35 U.S.C. § 102

5. Claims 29, 35 & 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicants’ Prior Art Fig. 1.

Applicants’ Prior Art Fig. 1 shows a first terminal 95, a second terminal Com, a switch/drive circuit 90 and a frequency variation circuit 140 as recited in claim 29.

Further shown in a rectifier 10, a capacitor 15, a first winding 35 and a second winding 45 as recited in claim 35.

Further shown is a feedback terminal (Error Amplifier In) are recited in claim 37.

[DX106 (‘851 Pros. Hist.) at FCS0000439]

436. The Power Integrations applicants never disputed that Prior Art Figure 1 showed the first terminal, second terminal, switch/drive circuit, and frequency variation circuit recited in claim 29 of the ‘851 Patent application. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 124:8-15].

437. In the same Office Action in which the Examiner rejected claim 29, the Examiner allowed claim 1 and specifically explained that the reason for allowance was because he believed that the prior art did not disclose the oscillator element required by that claim:

Allowable Subject Matter

8. The prior Art of record does not appear to disclose or suggest a PWM switch comprising an oscillator for generating a maximum duty cycle signal and a singnal [sic] with a frequency range dependant on a frequency variation circuit as recited in claim 1.

[DX106 (‘851 Pros. Hist.) at FCS0000440]

3. **To Overcome The Examiner's Rejection, Power Integrations
Amended Claim 29 To Copy the Oscillator Element from Claim 1.**

438. During the prosecution of the '851 Patent, the Applicants never corrected the Examiner's misunderstanding of the prior art. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 17-22]

439. Power Integrations "note[d] with appreciation" that the Examiner allowed claim 1 (and its dependant claims). [DX106 ('851 Pros. Hist.) at FCS0000448]

440. In response to the Examiner's rejection of claim 29 as anticipated by Prior Art Figure 1, Power Integrations never disputed that Prior Art Figure 1 contained the frequency variation circuit and every other element of claim 29 as originally filed. [DX106 ('851 Pros. Hist.)]

441. In response to the Examiner's rejection of claim 29 as anticipated by Prior Art Figure 1, Power Integrations amended claim 29 to include the exact same oscillator element as in claim 1. [DX106 ('851 Pros. Hist.) at FCS0000446-448]

442. In response to the Examiner's rejection of claim 29 as anticipated by Prior Art Figure 1, Power Integrations made the following representation:

35 U.S.C. § 102 Rejections

In the December 13, 1999 Office Action, claims 29, 35 and 37 are rejected under 35 U.S.C. § 102(b) as being anticipated by Applicants' Prior Art Figure 1.

Claim 29 as presently amended now expressly recites a regulation circuit that includes an oscillator that provides a maximum duty cycle signal and an oscillation signal having a frequency range that is varied according to a frequency variation signal. The Applicants' Prior Art Figure 1 fails to disclose, teach or suggest such limitations. Accordingly, the Applicants respectfully submit that the instant section 102 rejection has been overcome.

[DX106 ('851 Pros. Hist.) at FCS0000449]

443. Other than amending claim 29 to include the oscillator element and arguing that "The Applicants' Prior Art Figure 1 fails to disclose, teach or suggest such limitations", Power Integrations never provided any other reason to overcome the prior art or the Examiner's rejection. [DX106 ('851 Pros.)]

REDACTED

REDACTED

445. After Power Integrations amended claim 29 to include the oscillator element and argued that “The Applicants’ Prior Art Figure 1 fails to disclose, teach or suggest such limitations”, the Examiner allowed the claims of the ‘851 Patent. [DX106 (‘851 Pros. Hist.) at FCS0000460-61]

B. **The Prior Art Withheld From the Examiner Taught the Oscillator Element Power Integrations Claimed Was Missing.**

REDACTED

447. The Applicants made a false statement to the Patent Office when they told the Examiner that “The applicants’ prior art Figure 1 fails to disclose, teach or suggest such limitations.” [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 133:15-20]

448. **[DELIBERATELY BLANK]**

1. **Prior Art Figure 1 includes “an oscillator that provides an oscillation signal having a frequency range, said frequency of said oscillation signal varying within said frequency range according to said frequency variation signal”.**

449. Prior Art Figure 1 of the ‘851 Patent shows a PWM device (switch 90) labeled “SMP211”. [DX105 (‘851 Patent), Fig. 1]

450. Prior Art Figure 1 of the ‘851 Patent fails to disclose any internal details of the SMP211. [DX105 (‘851 Patent), Fig. 1]

REDACTED

452. The SMP211 has an oscillator, which is shown in its datasheet. [(9/24/07 Ineq.

Conduct Trial Transcript, Horowitz) 128:21-24].

453. The oscillator in the SMP211 also generates an oscillation signal. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 129:11-18].

454. The oscillation signal generated by the oscillator in the SMP211 is labeled SAW in Figure 3 (the block diagram) of the SMP211 datasheet. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 129:11-18].

455. The "Background" section of the '851 Patent Power Integrations states as follows:

To reduce the EMI output by the power supply an EMI filter 120 is utilized. Additionally, pulse width modulated switch 90 is equipped with frequency oscillation terminals 125 and 130. Frequency oscillation terminal 125 and 130 receive a jitter current 135 that varies according to the ripple component of substantially DC voltage 15. The jitter current 135 is used to vary the frequency of the saw-toothed waveform generated by the oscillator contained in the pulse width modulated switch 90. The saw toothed waveform generated by the oscillator is compared to the feedback provided at the feedback pin 85. As the frequency of the saw toothed waveform varies, so will the switching frequency of the switch coupled between the drain and common terminal. This allows the switching frequency of the switch to be spread over a larger bandwidth, which minimizes the peak value of the EMI generated by the power supply at each frequency. By reducing the EMI the ability to comply with government standards specific quasi-peak and average values at given frequency levels. Varying the frequency of operation of the pulse width modulated switch by varying the oscillation frequency of the oscillator is referred to as frequency jitter.

[DX105 ('851 Patent) at 3:9-30]

456. The "Background" section of the '851 Patent Power Integrations states that (as used in Prior Art Figure 1) the SMP211 (switch 90) operates as follows:

The jitter current 135 is used to vary the frequency of the saw-toothed waveform generated by the oscillator contained in the pulse width modulated switch 90.... Varying the frequency of operation of the pulse width modulated switch by varying the oscillation frequency of the oscillator is referred to as frequency jitter.

[DX105 ('851 Patent) at 3:14-30]

REDACTED

REDACTED

459. If the prior art SMP211 were used in the prior art circuit shown in Figure 1 of the '851 Patent, the oscillator in the SMP211 generates a signal with a frequency range dependant on a frequency variation circuit as recited in claim 1 of the '851 Patent. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 130:7-14].

460. Dr. Horowitz confirmed based on his review of the '851 Patent, the SMP211 datasheet, and the SMP211 schematic that if the prior art SMP211 were used in the prior art circuit shown in Figure 1 of the '851 Patent, the oscillator in the SMP211 generates a signal with a frequency range dependant on a frequency variation circuit as recited in claim 1 of the '851 Patent. [(9/24/07 Ineq. Conduct Trial Transcript, Horowitz) 130:7-131:1].

2. **Power Integrations admits that the oscillator in its prior art SMP211 also generates a maximum duty cycle signal.**

REDACTED

463. The SMP211 datasheet shows that the SMP211 device has a maximum duty cycle signal, and a power transistor with a control terminal connected to a drive circuit. [DX76]

464. The SMP211 datasheet contains the following diagram: